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South African Pharmaceutical Association.
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Central Pharmaceutical Association of N.Z.
Otago Pharmaceutical Association.
Pharmaceutical Society of Queensland.
Pharmaceutical Society of South Australia.
Pharmaceutical Society of Western Australia.

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EXCHANGE COLUMN.

ADVERTISEMENTS of second-hand fittings, and stock, &c., which may be included under the term "Bargains," are now inserted in the Coloured Supplement, and are received at the office up to Thursday of the week of publication. The charge for such advertisements is $\frac{1}{2}$ d. per word with name and address, or 1d. per word without. Many who read this paragraph may find something they need in the column, to others it may suggest an advertisement of something they want to get rid of or to buy.

Summary.

THE suicide of a Leeds chemist by prussic acid is reported on page 178.

THE death of a child through taking a drink from a bottle of Scrubb's ammonia is reported on page 177.

WE print the names of those who passed the Minor examination in Edinburgh last month on p. 222.

THE too free use of acetic acid as a corn-solvent has caused the death of an old man in Islington (p. 176)

MR C. S. ASHTON supplements the article on plant names, which Mr. C. C. Bell contributed to our last issue, by some useful notes (p. 238).

OUR artist went to tea at the Bovril works on Tuesday with a large party of nurses, and sends us some pictorial reminiscences of the visit (p. 180).

THERE is a chemist in Whitechapel who has acquired a great local reputation as a prescriber. A coroner's jury would hear nothing against him (p. 177).

ONE of the Sequahs has been fined at Newbury for selling certain cough-tablets "prepared only" by himself without a stamp, and without a licence (p. 231).

A SUMMARY of a remarkable address by M. Berthelot to the International Association of Practical Chemists is given in our French correspondence (p. 179).

A PLYMOUTH chemist has been assaulted, and his assailant is fined 1l 11s. 6d. A Doncaster chemist has been slandered, and a jury has given him a farthing damages (p. 177).

A LEGAL action between Mr Saxlehner and the Apollinaris Company, presumably in connection with Hanyadi water, has been mentioned in the High Court (p. 231).

MR. CARTEIGHE has received from the Executive of the North British Branch their recent resolution of appreciation, drawn up in the form of an illuminated address (p. 214).

THE British Medical Association has held its sixty-fourth annual meeting at Carlisle this week. We give some notes on the exhibition of drugs associated with the meeting (p. 225).

THE brokers have replied to the druggists in regard to the proposals for a reform of the arbitration arrangements of Mining Lane, making certain counter proposals which are not considered satisfactory by the wholesale drug-trade (p. 233).

AN unqualified person at Sheffield used the title of chemist by describing himself on a handbill as "for twelve years manager to S. W. Spurr, chemist," and in other ways. For this and for the sale of proprietary medicines containing poison he was fined 15l. (p. 231).

THE markets have been rather quiet. Drug-sales will be held next Thursday, but they will be of little importance. Opium is dearer; morphia and codeia have been raised in price; camphor is unaltered; cream of tartar and sulphate of copper lower; glycerine extremely firm; citric and tartaric acids steady.

MESSRS. BURROUGHS, WELLCOME & Co. have replied to the allegations of inefficiency made by the *Lancet* against their antitoxin serums. They believe their tests are satisfactory, but they are anxious to have the matter fully investigated, and they offer to bear the whole expense of a thorough inquiry (p. 223).

THE agent for Carter's little liver-pills writes rather sarcastically in reply to the letters which have been sent him on the recently advanced price of that medicine, and offers to supply single grosses at the lowest prices to chemists who will promise "to abjure and discountenance" the sale of substitutes (p. 237).

THE British Pharmaceutical Conference met in Liverpool this week, Lord Derby welcoming the members to the city. Mr. Martindale delivered an address, and twenty-two papers were read (see Contents). It was agreed to meet in Glasgow next year under the presidency of Dr. Charles Symes. An invitation to meet in Belfast in 1898 was given (p. 181).



English News

The Editor is obliged to correspondents who send local newspapers containing items of interest to the trade. He will be further obliged if such paragraphs be marked in all cases.

The Shops (Early Closing) Bill.

In his speech last week, when stating the intentions of the Government as to the remaining business of the Parliamentary session, Mr. A. J. Balfour made the following remarks on the Shops (Early Closing) Bill. He said:—"The two Bills which have been through Grand Committee and which seemed likely at one time to have full advantage of the rule which gives private Bills which have gone through Grand Committee precedence after Whitsuntide, are the Shop Hours Bill and the Benefices Bill. The Shop Hours Bill has indeed passed through Grand Committee, but the report stage has not yet been even begun, and in view of the opposition which I know will be offered to that Bill, my right hon. friend who is in charge of the Bill and who has taken so much trouble in connection with it will not be surprised, though I fear he will be pained, at learning that I can hold out no hope whatever that any opportunity can be given for making further progress with the Bill."

The Sun on the Chemist's Window.

A fire broke out on Sunday morning, July 19, in the shop of Mr. Robert Harrison, chemist and druggist, Darley Street, Farnworth. In the window was placed a large quantity of paraffin, wax, and other substances, and it is thought that the sun, which was very hot at the time, and was shining right on the window, caused one of the substances to ignite. There were plenty of people about, and some of them burst open the door and extinguished the fire with a few buckets of water. Two plate-glass windows and a large mirror were destroyed, and the damage amounted to close upon 50*l*.

The Mitcham Fire.

Messrs. John Jakson & Co. wish us to make it clear that the fire on their premises, which we reported last week, did not touch their distilleries, but was confined to a storehouse adjoining the private residence of the principal, Mr. Lelasseur, and 300 yards away from the distilleries. Work in the latter has not been discontinued, nor has the execution of orders been interfered with.

A female servant in the employ of Mr. Phillip Lelasseur was arrested a day or two after the fire, and was brought before the Croydon Magistrates on Friday last. The police thought she might have had something to do with the fire. After it had occurred, Mr. Lelasseur's cashbox, removed from the front parlour, was found empty and partially burned on a shelf immediately under which a fire had evidently been kindled. The contents of the cashbox were found in the box of the servant, who frankly admitted having taken the money. She stoutly denied having set fire to the premises, however, and there was no direct evidence to connect her with it. After hearing the evidence she was sentenced to three months' hard labour for the theft.

Filters for Baths.

The Mawson Filter Company, of Newcastle-on-Tyne, have recently fitted some of their main-service filters to the Pilgrim Street Turkish Baths. The marble plunge-bath, containing 10,000 gallons, is now therefore always supplied with filtered water. Formerly the water had a yellow tint and a considerable amount of organic matter. This has all been removed by the filters referred to.

Those Happy Days.

On July 20 part of the staff of the Kaputine for Headache Syndicate—twenty-six in number—had an excursion to Blackpool, the Brighton of the north. They left Huddersfield by an early train, arriving at Blackpool in time for breakfast, and spent the day in enjoyable sea-side fashion.

Grocer's Tincture of Rhubarb.

At the Chertsey Petty Sessions, on July 22, William B. Lucas, grocer, of Byfleet, was summoned for selling 4 oz. of tincture of rhubarb which the Public Analyst certified contained no saffron, a constituent which it should contain, and was deficient to the extent of 33 per cent. of proof spirit. Defendant said he sold the tincture as he bought it. He was ignorant that it should contain saffron. Defendant was fined 2*l*, including costs.

A Chemist's Action for Rent.

On July 24, in the Westminster County Court, Mr. G. S. Boutall, chemist, sued Mr. Edge, dentist, for rent. The plaintiff had premises at 220 High Holborn, and the defendant had a portion of the premises for which he paid 120*l*. a year rent. The plaintiff's lease expired and due notice was given to the defendant, and formal arrangements were made by which defendant should go to plaintiff's new premises at the same rent; but that arrangement was never carried out, and the defendant now sought to obtain damages for breach of agreement. Defendant denied he made any fresh agreement or that he had notice to go. He heard, quite accidentally, that the premises were coming down, but he knew the plaintiff's lease expired in March. His Honour gave judgment for the plaintiff for the amount claimed, with costs on the claim and also on the counter-claim.

A Fatal Corn-solvent.

Dr. G. Danford Thomas held an inquest on Tuesday last, at Islington, on the body of Giles William Kingsland, aged 75, who had been a printer's reader. The deceased, it appeared, was troubled with a corn on the small toe of his right foot, to which he kept constantly applying acetic acid. The result was he burnt into the soft flesh and caused a severe sore. Inflammation spread to the entire foot and up the leg. Then gangrene supervened, and death from exhaustion followed on Thursday of last week. Dr. K. Souter, a neighbouring practitioner, who was called in, said when he first saw the deceased he had a very nasty sloughing wound. The Coroner: He had used the acid rather too freely? Witness: No doubt. The Coroner: Only the least touch of the acid is required. Witness: I should not feel inclined to use it myself. The Coroner: Acetic acid is a common application for warts and corns, but it must be used lightly, and with the greatest care. The base of the advertised patent corn-solvents is acetic acid. Witness: The application used by the deceased was a patent "corn killer." The Coroner: Its effect unfortunately in this instance has been too deadly. Applied to a hard horny substance only it might not have done harm. The jury returned a verdict in accordance with the medical evidence.

Selling Laudanum.

Mr. Brighonse, the Southport Coroner, held an inquiry a few days ago, into the cause of the death of the wife of Arthur Rogers, a printer, who died from laudanum-poisoning. On Tuesday morning of last week the husband left his wife ill in bed, and at noon, when he returned, she was unconscious, and died shortly afterwards. Richard Mainwaring, chemist, said the deceased came into his shop on Sunday night and asked for a bottleful of laudanum. He gave her a bottleful containing about 1½ oz., and labelled the bottle "Poison." She said she wanted it for an embrocation. He warned her that it was dangerous. On Monday or Tuesday she purchased more laudanum from him, saying it was for the same purpose. She had long been a customer of his, but had never bought laudanum before. A Juror: Is it not customary to sign a book for such a quantity? Mr. Mainwaring: No. The Coroner: It is not necessary for a customer to sign a book for such poisons as laudanum and carbolic acid. The law has been complied with when the chemist labels the bottle "Poison." James Whitworth, a chemist, Portland Street, also gave evidence that on the Tuesday he sold 1 oz. of laudanum to the deceased, who said she wanted it for an embrocation. A verdict of suicide whilst temporarily insane was returned.

The Chemist's Wife and the Doctor's Drug-stores.

At the Townhall, Axbridge, last week, Emma Carroll, wife of George Carroll, chemist, Highbridge, was charged with committing wilful damage to two doors, to the extent of 1*l*. 7*s*. 6*d*., at the Drug Stores, Highbridge, the property of Dr. Hadwen, of Highbridge. Mr. Board, of Burnham, appeared for the

prosecutor, and the prisoner was undefended. After hearing the evidence of the prosecutor and P. S. Bartlett, the prisoner was fined 10s. and costs (12. 11s.), and ordered to pay 17. 7s. 6d. damage, or in default committed to Shepton Mallet for fourteen days' hard labour. The woman was further charged with assaulting Dr. Hadwen at the same time. She pleaded guilty, and was bound over in the sum of 5*l*. and one surety of 5*l*. for three months, and in default of finding surety she was to be imprisoned for a further term of fourteen days.

Seeking Shelter in a Chimney.

John Johnson, *alias* John Revill, sobbed pitifully in the police court at Sheffield on Monday, when charged with having robbed the till belonging to Mr. Frederick Riding, drug-store keeper, Bolsover Street. The case against him was that on Saturday night, when Mr. Riding left his shop for a moment, the prisoner entered, and, leaning over the counter, took about 4s. from the till. Rejoining a "pal" outside they bolted, and although pursued they were not overtaken. From a description given of the prisoner the police identified him, and went to his house. The wife assured the officers that he was not at home, but seeing a quantity of soot on the floor they peered up the chimney, and there was the prisoner stripped to his shirt. He was very violent when pulled down. As he had been in trouble before, he was sent to the sessions for trial, and refused bail.

Assault on a Chemist.

At the Compton (Devon) Petty Sessions on July 22, William I. Roper, chemist, of Laira, Plymouth, summoned Joseph Goss and George Cocking, of Devonport, for assaulting him on July 7. The affair arose out of a somewhat romantic case, which was of great interest locally. It appears that a little boy, son of Mrs. Roper, had been adopted by Mr. Cocking, and that several unsuccessful attempts had been made by Mr. and Mrs. Roper to obtain repossession of him. On the night in question Mr. Roper was carrying the child from the railway station, after a strategic capture, when he was met by Mr. Goss, who demanded the boy. On refusing, Mr. Roper was knocked down and the child forcibly taken from him, Mr. Cocking taking the child off in a cab. A doctor was consulted and dressed Mr. Roper's wounds, and a summons was the outcome. Defendants were fined 1*l*. 11s. 6d. inclusive, and on a cross-summons Mr. Roper was mulcted in court costs.

Chemists at Cricket.

A match was played on July 18 between Burgoyne Burbidges C.C. and Barron Harveys C.C., on the ground of the former at Willesden, resulting in a win for B. H. C.C. by 14 runs. The scores were: B. H. C.C., 99 (Rushbrooke 28, Ingham 27, Grant 23); B. B. C.C., 85 (Moxon 62 not out).

A match was played at Nunhead on Saturday last between Barron Harveys C.C. and Nobles & Hoares C.C., resulting in a win for the former by 42 runs. The scores were: B. H. C.C., 84 (A. Halsen 19, McLennan 16); N. H. C.C., 42.

Metric Weights and Measures.

Mr. Ritchie, President of the Board of Trade, has this week introduced the Government Bill for rendering metric weights and measures legal in this country. It is hardly likely to get through Parliament this session.

Libelling a Chemical Manufacturer.

At the Leeds Assizes on Monday last, Mr. Walter Wray Hopkinson, manufacturing chemist (proprietor of fly-traps) and beer bottler, Doncaster, sued Mr. Thomas Swallow, of the Leopard Hotel in that town, for damages for slander. The plaintiff's case was that his traveller called at the Leopard Inn and asked the defendant to give him an order for bottled beer. The defendant looked at a label on a bottle "Executors of William Slack"—under which style the plaintiff traded—and remarked, "I won't have anything to do with that firm. They are the lowest of the low." These words were said to have been uttered aloud in the presence of many people who heard them. The defendant stated that all he said when he saw the bottle with the name of the plaintiff's firm on was, "I don't deal with such tinpot firms." He said nothing about "the lowest of the low." The jury returned a verdict

for the plaintiff, and assessed the damages at one farthing and his Lordship gave judgment accordingly.

After luncheon Mr. Beverley asked that the plaintiff should be deprived of his costs, having regard to the view of the jury that there had been no malice in the mind of the defendant.

His Lordship: I do not think I ought to interfere with the course of the law.

Theft by a Chemist's Assistant.

At the Woolwich Police Court on Wednesday, before Mr. Kennedy, George William Cumming Little (25), shop-assistant, 167 High Street, Plumstead, was charged with stealing 5s. 1*l*. from the till of Day's Drug Company. The manager said that the prisoner was employed at the 141 Plumstead Road branch, and, being suspected, some persons were sent to make purchases with money to the amount of 5s. 1*l*. The amount in the till should have been over 1*l*. 2s., but was only 18s. 4½*d*. He stole 5s. 1*l*. in half-an-hour. He wrote a confession that he stole 2*l*. 10s. in one week. He was dealt with under the First Offenders Act, and ordered to appear for judgment if called upon.

Filters for Darjiling.

Messrs. J. Defries & Sons (Limited), of Houndsditch, invited a party of Press representatives and others to inspect a large installation of the Chamberland-Pasteur filters for which they are licensees for the British Empire. The installation consists of thirty-eight cells or cisterns of tough cast iron, cased with an acid-resisting composition. Every cell is supplied with a number of Pasteur filter-tubes in the well-known form, fixed into solid elastic bushes, which without any mechanism make automatically an impermeable joint. The inlet and outlet pipes are controlled by sluice-valves in the ordinary way, and by means of a small air compressor the mechanical and bacterial soundness of each cell, or any group of cells, with their constituent filter-tubes, can be immediately tested. This is owing to the circumstance, apparently peculiar to the remarkable medium of which the Pasteur tubes are composed, that, when soaked with water, the minutest invisible flaw will permit the passage of air under a pressure of 10 lbs. to 15 lbs. per square inch, while, if sound, it will retain it. By means of a circulating pump, an occasional flush of water containing 5 to 10 per cent. of hydrochloric acid can be forced through the tubes. By this process the dialytic deposit in the pores of the filter-tubes is removed, and the whole of the filtering-system is sterilised. The installation will be worked entirely by one man, who could, indeed, attend to one of much larger size. Its nominal output, which could, if necessary, be exceeded, is 150 000 gallons per day.

Fatal Dose of Scrubb's Ammonia

The four-year-old son of the Rev. J. H. Bourne, of Broom's, died last Monday through drinking from a bottle of Scrubb's cloudy household ammonia which had been left on the table.

The Long Firm

Arthur Matthews (32) was sentenced at the recent Nottingham Assizes, by Mr. Justice Grantham, to five years' penal servitude on charges of obtaining by false pretences from Messrs. Barnett & Foster, Messrs. Boake, Roberts & Co., Messrs. Hasall & Co., and other firms. The case was previously reported by us on July 18, page 66.

Appreciated.

A Whitechapel boy who died "a natural death" had been attended by a man who "can cure anything." A duly-qualified doctor described him at the inquest as a quack, a remark which caused one of the jurors to exclaim, "Why, he's a chemist, and a good 'un, too. He's an old-established man." "I have never heard of him before," said the Coroner. A second juror looked at him in surprise, and added, "Well, he's a good man, I can tell you, and it takes a long time to find one nowadays." "Why, he's the wonder of Whitechapel," exclaimed a third; "he can cure anything. He can cure lumbago and croup better than anyone I have ever known. We all have a very high opinion of him, and we have good cause to be proud of having him in our midst."

The Chemist and the Disinfectants.

At the Witham (Essex) District Council meeting, on Saturday, July 25, Mr. R. P. Green, chemist, who is the contractor for supplying disinfectants to the Council, was reported to have written complaining that some had been purchased from another firm. The Surveyor said Mr. Green told some of the Council's men that if they did not use more liquid disinfectants he should report them to the Council. He (the Surveyor) did not think it was right, because Mr. Green was the person who supplied the disinfectants. (Laughter.) The Surveyor stated that he had purchased one small quantity elsewhere, but that was before he knew of Mr. Green's contract.

Suicide of a Druggist.

An inquest was held on July 28 at Leeds concerning the death of Henry Charles Morris (32), who carried on business as a druggist at 57 Harehills Road, Burmantofts, Leeds. On Monday evening Morris was in his shop, when his sister, who lived with him, called him for tea. As he did not respond she searched the premises, and found him at the bottom of some steps leading to the cellar. He was unconscious, and appeared to be dying. Dr. R. G. Barnes was called in, and discovered that deceased had taken a considerable dose of prussic acid. He left a note written on the back of an envelope, to this effect: "Mr. and Mrs. Johnson have been too good to me. Cremate me, and don't go into mourning for me." Miss Alice Morris testified that her brother had been afflicted with epilepsy, and was told by a medical man that the next attack might prove fatal. This seemed to have preyed upon his mind. The Mr. Johnson alluded to in the note is a chemist living in Wellington Road, Wortley, and was on very friendly terms with the unfortunate man. The jury returned a verdict of suicide whilst of unsound mind.



The Apothecary and the Trees.

Mr. Eaton, the newly-appointed apothecary to the Clonmel Dispensary, has cut down a tree or two in his garden. Some of the Guardians are violently indignant that he should have done this without consulting them, and, besides, there are the rights of property. One guardian hopes the landlord will sue him for 10l. for every tree cut down.

Personal.

Dr. Letts, Professor of Chemistry in the Queen's College, Belfast, has been appointed lecturer in sanitary science in that college.

Mr. Stanley Harrington (the Cork Chemical and Drug Company, Limited) has been co-opted a director of the Munster and Leinster Bank.

Mr. James Glendenning, L.P.S.I., has secured premises in Waterloo Place, Derry, and is about to start a medical hall in the "Maiden City."

A Customer for a B.P.

The Carrick doctor wants a new B.P. for the workhouse dispensary. He says every well regulated pharmacy should have an up-to-date volume. The Guardians think differently, and say the older the book the better. According to the applicant, the present volume goes back to the time when "Adam was a boy." A section of the Guardians hold that the doctor should bring his own books. The matter has ended in a draw for the present.

The Dogs must Go to the Country.

The Master of the Rolls has granted an interlocutory injunction restraining Mr. John Bird from keeping a dogs' hospital in Dawson Street, Dublin, on account of the noise made by the patients.

Varying Drug-prices.

The Board of Guardians at Fermoy have appointed Messrs. D. O'Ryan & Co., chemists, Tipperary, contractors for the supply of drugs, &c. In making a selection, the Board commented on the flexibility of the price charged for medicines by the various contractors, whose tenders for a certain drug ranged from 1d. to 3s. 6d. per lb. respectively.



Photo of Edinburgh Druggists.

We are asked to state that for 1s. 3d., postage paid, photographs of the last picnic group of the Edinburgh District Chemists' Trade Association, taken at Tarbet, may be had from Mr. W. L. Currie, 223 Byres Road, Downhill, Glasgow; or from C. F. Henry, 1 Brandon Terrace, Edinburgh.

Edinburgh Chemists', Assistants', and Apprentices' Association.

The third summer meeting and botanical demonstration of the session was held in the Pharmaceutical Society's House, 36 York Place, Edinburgh, on Wednesday July 15, at 8.30 P.M., Mr. James McBain, President, in the chair. A large number of plants was sent by Mr. Alexander Sutherland from Unst, Shetland, and by Mr. Donald McEwan, from Limekilns, Fife. The Unst collection was remarkable for the great brilliance of the colours, indicating its affinity to the rich-coloured Scandinavian flora. Mr. McEwan's collection included *Dipsacus sylvestris* and *Melilotus alba*. In the unavoidable absence of Mr. William Duncan, the plants were described by Mr. Hill. On Friday, July 17, the third botanical excursion took place to the Marl Pit Pool, Craigmuck. About twenty members joined the trip, and the locality was well explored under the guidance of Mr. Hill. Among the plants collected was one which puzzled the quidnuncs for a time, and was ultimately spotted by Mr. C. A. Macpherson as *Lotus major* in flower.

A Golf Champion.

The "Dick Handicap Challenge Medal" of the Edinburgh Pharmacy Athletic Club (Golfing Section) was played for on Friday and Saturday last, and was won by Mr. W. J. Walker, with the score of 88 scratch.

From Pharmacy to Medicine.

Mr. John Innes, chemist, George Street, Aberdeen, was amongst the graduates in medicine who received the degree of M.B., C.M., at Aberdeen University on July 27. Mr. Innes started business on his own account in 1891, and commenced the study of medicine during the following year.

BIG DOSES OF BISMUTH.—A French physician records that a patient suffering from hypersecretion of hydrochloric acid was given $\frac{1}{2}$ oz. of bismuth subnitrate in the morning and 75 gr. at night, with $\frac{1}{100}$ gr. of atropine sulphate. This treatment was in error continued for twenty-four days, and the patient took about 50 oz. of the subnitrate. It produced only a relative amount of constipation, and did not appreciably modify the functions of the stomach.

International Congress of Chemistry.

THE International Congress of Applied Chemistry held its opening meeting last Monday morning in the Grand Amphitheatre of the Sorbonne, Paris, under the presidency of M. Berthelot. This Congress is the second of its kind, the first having been held at Brussels and Antwerp in 1894. Its organisation is due to the initiative of the French Association of Chemists of Sugar-works and Distilleries. It includes 1597 members, among whom England counts only eight, while twenty come from the United States. The Congress has the official patronage of the French Government, and most of the Ministers are represented at the meetings by a delegate. Two pharmacists, MM. Charles Durand and Raoul, appear respectively for the Ministers of Marine and the Colonies. The proceedings were commenced by a speech by M. Lindet in the name of the organising committee. M. Berthelot, as President, then gave an opening address, in the course of which he said: "The honour you have done me in asking me to be your President is doubtless due to my age and the gratitude of my pupils rather than to my merits. Doubtless, I have worked fifty years with incessant labour, and until my dying day I shall not cease to interest myself in the questions which concern you." He referred at considerable length to the work to be accomplished at the meetings of the Congress, speaking of the members as the "masters of applied chemistry." "Perhaps no science," he added, "more than chemistry requires a constantly-renewed understanding between practice and theory. Your work is, in principle, without limit, because, as you know, chemistry is in touch with every branch of art and learning; it supplies facts and inspirations to everything." Referring to synthetical chemistry, he added: "The day when the inventions connected with it get beyond the domain of scientific laboratories and are used for manufacturing purposes, we shall see strange alterations in the world. Agriculture has been greatly modified by the inventions of chemistry, and the great discoveries of chemists and physiologists have modified not to a less degree by the study of microbes the wine, beer, and alcohol industries." M. Berthelot also touched on practically all the points in which chemistry affects mankind, whether in the acts of peace or war. With regard to acetylene, he said: "A new rival in illuminants has entered on the scene, of which the well-regulated combustion increases the luminous power to a marvellous degree. . . . At present this gas, formerly so rare and costly, is now obtained at low prices and in large quantities. Doubtless the day is not far off when it will be used for the economical manufacture of benzine, oxalic acid, and perhaps alcohol and acetic acid. These reactions are easily obtained, and belong to the order of those which daily pass from the laboratory to the manufactory." In concluding, M. Berthelot treated his audience to one of those brilliant flights of fancy, of which he has made a speciality, concerning the social life of the future as the outcome of the progress of chemical science. "Let me cite," he added, "the material and moral changes that have taken place during the last half-century. We are still at the commencement of a new era. At a near date the combined progress of physics and chemistry will enable flying-machines to be an accomplished fact, and what will then become of commerce, Custom-houses, civil and military international relations? Persons who are accustomed to reason about the future by taking the experience of the past as a basis will doubtless say I am dreaming. Perhaps! But we can affirm that the changes now dreamed of, and possibly others not less important, will come about in a few generations. The scientific spirit never stops. It goes ever onward, and excites a ceaseless activity in man's intelligence and in industry. It has already transformed, and it will continue to transform with increasing rapidity, the division of riches and the form of human society. As regards ourselves, we are by conviction and education the slaves of scientific facts, and we accept their consequences whatever may be the result. Our duty is thus clearly traced. We must act! That is work! Work without ceasing, and try to render ourselves useful. Activity and the love of mankind! This is the last word of private, as well as social, life." The

announcement this week that M. Berthelot has been raised to the rank of "Grand Cross of the Legion of Honour" coincides happily with the opening of this Congress.

Foreign and Colonial News.

By inadvertence we omitted to state in our last week's article on "The Oldest American Peppermint-oil Distiller," that Mr. H. G. H. Hotchkiss's photograph was lent us by Messrs. Schoelkopf, Hartford & MacLagan, of New York, through the courtesy of Mr. Samuel Lambert, their London agent.

THE LATE PROFESSOR KEKULÉ.—August Friedrich Kekulé von Stradonitz was the full name of the chemist who died at Bonn on July 13. He was a native of Darmstadt, and received his principal chemical training in Liebig's laboratories at Giessen. His first great discovery, that of the tetrad-valency of carbon, was made when he was only 29.

THE FLÜCKIGER MEMORIAL.—The first two stipends of the Flückiger Memorial have been awarded to Dr. Schlotterbeck, of Ann-Arbor University, Michigan, for researches "On the Development of certain Official Seeds," and to Apotheker Dr. Biernann, in Holzminden, Germany, for a treatise "On the Structure, the Development, and the Comparative Anatomy of the Citrus-fruit." Both stipends are to be used to defray the cost of lithographic tables for the publications in question.

MR. RICKSECKER STARTED AGAIN.—The Theodore Ricksecker Company has started business at Mr. Ricksecker's former office, 58 Maiden Lane, New York. The incorporators of the new concern are Theodore Ricksecker, Frank B. Marsh, Lowell M. Palmer, James Macnaughtan, and A. Ward Brigham. Mr. Marsh has been for eight years in charge of the manufacturing department of Luzzell, Dalley & Co., and the other gentlemen are all well known in banking circles. The cash capital is \$40,000.

PHARMACY IN ITALY.—In reply to questions, the Italian Under-Secretary of State for the Home Department has declared that although the Government admitted the want of pharmacies in small country-places, yet it would refuse to remedy this evil by the granting of pharmaceutical diplomas to persons who were not in every respect qualified. The Government, however, were prepared to take into consideration the establishment of a special examination for pharmacists of a lower grade, whose activity would be restricted to small provincial places.

AN AMERICAN PATENT-SUIT.—An American lawsuit, arising out of the infringement of a patent on acid-magenta dye, has been brought by Read Holliday & Sons (Limited) against P. Schulze-Berge, Victor Koechl, and August Movius. Judge Townsend, of the U. S. Circuit Court, has decided it in favour of the plaintiffs. A patent on acid-magenta was granted to John Holliday in 1831, and subsequently assigned by him to the plaintiffs. The defendants put on the market practically the same substance under the name of new acid-magenta, but claimed an original method and original materials of manufacture.

CALIFORNIAN QUICKSILVER MINING.—Some of the quicksilver mines of California are profitable properties. For the three months ending May 1 the net earnings of the Etna mine in Napa County were \$20,490, and the dividend of \$10,000 was paid on June 10. The net earnings of the Napa Consolidated for the quarter ending July 1 were \$22,043. The regular quarterly dividend of \$10,000, and an extra dividend of the same amount, were paid on July 1. These two companies together have just acquired the New Idria Quicksilver property in San Benito County, California, consisting of four claims. This mine has produced as much as 1,500 flasks of quicksilver per month.

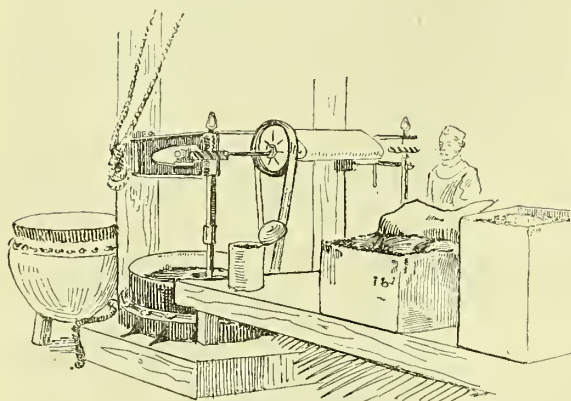
"WHAT acid do we get from iodine?" asked the medical professor. "We a-au-ually get idioic acid," yawned the student. "Have you been taking some?" quietly asked the professor.

Bovril and the Nurses.

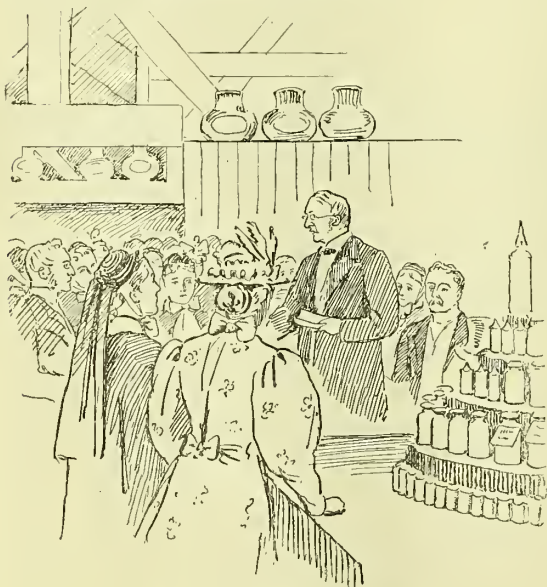
THE Bovril factory in Bath Street, City Road, was well filled on Tuesday afternoon last, from 3 till 6, principally



THE BOVRIL LASSIES.



BLENDING THE MEAT-EXTRACTS.



LORD PLAYFAIR DISCOURSES ON FOOD.

with nurses, who had been invited by the directors of the company to come to tea with them. The nurses mostly brought a friend with them, so that the crowd was fairly

divided between ladies in the now familiar garb and ladies in ordinary costume. Lord Playfair, the chairman of the company, was in and out among the company, and in the course of the afternoon gave a short address on the properties of foods; Mr. Johnston, the inventor of Bovril, Mr. Andrew Walker, the general manager, and Dr. Farquharson, M.P., one of the directors, were also present. Bovril appeared modestly at the foot of the tea menu, but, as far as we could judge, it yielded in popularity that afternoon to ices and peaches. The Bovril lassies on the two large upper floors of the building were busy all the while bottling, labelling, and finishing the dainties turned out by the firm; and nurses were invited to leave their names and addresses, so that samples of the products might be sent to them. This recognition of the influence of "the new profession" is an indication of smartness on the part of the Bovril Company, which will no doubt help to keep up their 20 per-cent. dividend.

New Companies and Company News.

BRAZILIAN CHEMICAL COMPANY, LIMITED.—Capital, 25,000*l.*, in 1*l.* shares. Objects: To acquire and take over the rights and privileges which were granted to J. Peake, of Stoke-upon-Trent, Stafford, chemical manufacturer, by the Government of Brazil, and with a view to an agreement to carry on in the Republic of Brazil and elsewhere the business of tin, steel and metal workers and merchants, chemists, druggists, drysalts, oil and colour men, &c. The first subscribers (each with one share) are:—J. Peake, Stoke-upon-Trent, merchant; J. Knight, Newcastle, Staffordshire, solicitor; H. J. Williams, Kidsgrove, Staffordshire, merchant; E. Alcock, Burslem, Staffordshire, solicitor; J. H. Bulleid, Newcastle, Staffordshire, solicitor; C. F. Crow, Woodstock Road, Oxford, merchant; J. Heath, M.P., 54 Cadogan Square, S.W. Table A mainly applies. Registered office, 22 Southampton Street, Bloomsbury.

R. & T. J. ADAMS—Capital 7,500*l.*, in four hundred 10*l.* preference shares and 3,500 Ordinary 1*l.* share). Objects: To carry on the business of oil and colour merchants, dealers in chemicals, druggists, drysalts, varnish manufacturers, importers and exporters, carried on by R. Adams and T. J. Adams, 24 and 26 John Bright Street, Birmingham, under the style of R. & T. J. Adams. The first subscribers (each with one share) are:—R. Adams, 24 John Bright Street, Birmingham; R. H. Adams, Wootton House, Knowle; T. J. Adams, Birmingham; Mrs. E. M. Adams, 69 Wellington Road, Handsworth, Staffs; Miss M. E. Adams, 18 Grosvenor Road, Handsworth, Staffs; A. G. Adams, 18 Grosvenor Road, Handsworth, Staffs; Miss E. Adams, 18 Grosvenor Road, Handsworth, Staffs; J. Fletcher, 4 Clive Villas, Pershore Road, Birmingham. Registered office, 24 and 26 John Bright Street, Birmingham.

JOHANNIS (LIMITED).—The directors have declared an interim dividend at the rate of 6 per cent. per annum.

BOVRIL (LIMITED).—A meeting of this company was held on July 28, Lord Playfair in the chair. This was the first meeting held after the reconstruction. The chairman stated that the reconstruction had been attended with considerable expense, the whole of which, however, had been borne by Mr. Johnston, as agreed. The increase in the sales of the company's products had been remarkable; in the few weeks which had elapsed of the current year they had been 30 per cent. larger than in the same period of 1895. For the past year the profits amounted to 88,120*l.*, and the board recommended the payment of 37,500*l.* for the last six months, being a dividend at the rate of 20 per cent. per annum, and making, with the interim dividend paid by the old company, a total distribution of over 13 per cent. for the year on the increased capital. They also recommended that 25,000*l.* be employed to open an account termed "reserve of undivided profits," such reserve to be available for equalisation of dividends or otherwise as might be agreed on. Land had been purchased close at hand on which to build a new factory capable of giving them three times the accommodation they now possessed.

BRITISH PHARMACEUTICAL CONFERENCE.

THIRTY-THIRD ANNUAL MEETING.

LIVERPOOL, JULY 27 TO 30, 1896.

Lord Mayor of the City—THE RIGHT HON. EARL OF DERBY, P.C., G.C.B.
 President of the Conference—MR. WILLIAM MARTINDALE, F.C.S.
 Chairman of Local Committee—DR. CHARLES SYMES, F.C.S.
 Local Secretary—MR. THEO. WARDLEWORTH.



HE meeting began well. And for two reasons, mainly. First, Monday evening was pleasant, bracing, and inspiring. Second, the Walker Art Gallery is the *beau idéal* for a *conversazione*. One cannot walk through the galleries without feeling the atmosphere of taste, as well as wealth, which the pictures on the walls reflect. There was another factor also which should not be passed without mention—viz, the hearty reception which the President, Mr. William Martindale, and his wife and daughter gave everyone. Dr. Symes, Mr. A. C. Abraham, and other members stood close by to support them. Fully 400 men and women were announced by the knee-breeched and powdered-hair young men who stood at the door. The Civic authorities were represented by Alderman Stolifoht, Councillors Morris Jones, A. H. Samuel, and Lea; the University College by Professors Paterson, Carter, and others; and local pharmacy was there in force. To name them all would be to repeat the list which is printed on page 216; but mention may be made of the Evans family—Edward Evans, jun., J. J. Evans, and W. P. Evans—and Mr. F. Harwood Lescher had come from London to support them. The London contingent was exceptionally strong. Mr. and Mrs. Michael Carteighe, Mr. Slinger Ward, Mr. Councillor Idris, Mr. Henry Potter, Mr. Taubman, Mr. and Mrs. John C. Umney, Mr. Tyrer and his brother, Canon Tyrer, were there; also Mr. and Mrs. N. H. Martin (Newcastle), Mr. and Mrs. Michael Conroy, Mr. and Mrs. Dyson (Kensington), Mr. and Mrs. Emerson (Hatton Garden), Mr. and Mrs. Chas. Keir (Dundee), Mr. J. Laidlaw Ewing (Edinburgh), Mr. and Mrs. Chas. Thompson and Mr. Darton Gibbs (Birmingham), Mr. John Bowman (Leith), Messrs. Hardwick and Bilson (Bournemouth), Mr. G. S. Taylor and Miss Taylor (London), Mr. R. A. Robinson (Brompton Road), Mr. and Mrs. D. Lloyd Howard (Stratford)—but the memory fails to recall all the pleasant faces of the evening; suffice it to say that the first impression was that Liverpool had drawn pharmacists from all parts of England, Wales, and Scotland, and Ireland sent Mr. W. F. Wells and Mr. Begg, with their wives, to show that in one pharmaceutical thing at least British pharmacy is united.

The local committee were wise in not pressing too much into the two hours that the *conversazione* lasted. It commenced at 8, and shortly thereafter the strains of Herman's *Le Chevalier Breton* were sounded by the Euterpeans, a stringed orchestra of ladies, led by Miss Annie Scott. The instrumental selections were supported by vocal efforts by Mr. W. Guthrie Scott and Miss Annie Nelson, and it may be said with fairness that never have the Conference members

had a better musical entertainment given than on the first night.

PART I.

OVERTURE	.. ..	"Le Chevalier Breton"	.. ..	Herman
MORCEAU DE GENRE	.. ..	"Margherita"	.. ..	Mascaron
SONG	.. ..	"Loving Smile of Sister Kind" (<i>Frust</i>)	.. ..	Gounod
Mr. W. GUTHRIE SCOTT.				
(With Orchestral Accompaniment.)				
VIOLA SOLO	.. ..	"Nocturne"	.. ..	Kalivoda
Miss LILLIAN SCOTT.				
SELECTION	.. ..	"La Cigale"	.. ..	Audran
SONG	.. ..	"My Dearest Heart"	.. ..	Sullivan
Miss ANNIE NELSON.				
VIOLIN SOLO	.. ..	"Reminiscences of Scotland"	.. ..
Miss ANNIE SCOTT.				
MEXICAN DANCES	.. ..	(a) "Roses and Thorns"	.. ..	Viderique
	.. ..	(b) "At Midnight"	.. ..	Aviles

Interval of Twenty Minutes.

PART II.

MAZURKA	.. ..	"Violettes Russes"	.. ..	Tallem
SONG	.. ..	"Tatters"	.. ..	Gerald Lane
Miss ANNIE NELSON.				
PIANOFORTE CONCERTO	in B flat, No. 2, Op. 19..	.. ..	.. ..	Beethoven
Miss EMILIE SCOTT.				
SONG	.. ..	"Best of All"	.. ..	F. L. Moir
Mr. W. GUTHRIE SCOTT.				
SELECTION	.. ..	"The Mountebanks"	.. ..	Cellier
MANDOLINE SOLO	.. ..	"La Czarine"	.. ..	Gaunes
Miss GRETA SCOTT.				
SONG	.. ..	"In Summer Night"	.. ..	Goring Thomas
Miss ANNIE NELSON.				
(Cello Obligato—Miss Julia E. Scott.)				
VAISE	.. ..	"Estudiantina"	.. ..	Waldteufel

Mr. Leo Atkinson's radiography demonstration was given in the same room, and was a complete success. He had two cryptoscopes, through which the visitors examined the bones of their hands, and had there been a dozen they could have been fully employed. Refreshments were served in one of the picture-galleries—that one in which are the two Constable's, admired of every one, and Rosetti's "Dante and Beatrice." The buffet was the finest the Conference has yet seen—ample in space, varied in supplies, and admirably served. Towards 10 o'clock the members gradually focussed round it, and the hum of conversation was all in token of how the guests had enjoyed themselves, and speculative as to whether the clerk of the weather would be as generous as Liverpoolian pharmacists. He behaved well on the whole. There was as much rain on Wednesday afternoon as would lay the dust (Dr. Symes put it so), and the watch-inspecting party went away waterproofed; but the gods favoured them, and they came back dry shod, fit for the smoking and drawing-room concerts which wound up the scientific aspects of the thirty-third annual meeting.

FIRST SESSION, TUESDAY MORNING.

THOSE of the Conference who were fortunate in getting rooms in the Adelphi Hotel (and here it may be said that the visitors overflowed to several hotels in the neighbourhood) were startled on Tuesday morning to find the entrance hall guarded by several stalwart halberd-bearers, the attendants upon the Sheriff. Many stayed at the hotel to witness his departure for the Assizes, and that, we may charitably say, was the main reason for the delay in the commencement of the proceedings, timed for 10 A.M. The Arts Theatre of University College, in which the sessions were held, is a magnificent apartment, in shape a half-circle, and splendidly lighted from the radius and the roof. Its sitting-accommodation in the area is about 400, and more than half of the chairs were filled when at 10.5 the Earl of Derby was conducted to the platform by Mr. Martindale and Dr. Symes. They had a hearty welcome. Those who supported the President and chairman of the local committee, were Messrs. A. C. Abraham, Michael Conroy, W. A. H. Naylor, Francis Ransom, T. B. Groves, S. R. Atkins, N. H. Martin, J. Laidlaw Ewing, and John Moss. The proceedings commenced with

THE LORD MAYOR'S
WELCOME.

The PRESIDENT, who was received with cheers, said: My lord, ladies and gentlemen,—In opening the thirty-third session of the British Pharmaceutical Conference, I have much pleasure in calling upon the Lord Mayor of Liverpool to address you.

The EARL of DERBY, who was also accorded an enthusiastic reception, said: Mr. President, ladies and gentlemen,—The pleasing duty is cast upon me, as a representative of the citizens of Liverpool, to bid you heartily welcome on the occasion of your finding yourselves once more in this town after a lapse of more than a quarter of a century—six-and-twenty years. Liverpool is at all times glad to welcome within her walls members of distinguished scientific and learned bodies, and it is a matter of satisfaction that your Society has settled to hold here its conference for the present year. There is a desire on the part of all persons—always consistently with the main object of your meeting—that your stay should be made as pleasant as possible, and I understand that already arrangements have been made for the next few days that will fully occupy the leisure hours of the members of the Conference. We feel, in common with a good many other people, the importance of such a society as this. In other lines of life the public may pretty well be trusted to take care of itself. If food is bad, if sanitary conditions are bad, the public generally has a practical—possibly an experimental—knowledge of the proper conditions—(laughter)—and it's generally, as I say, able to take care of itself. Of pharmacy, as a field, it appears to me that it can quite hold its own. It has great and important duties to discharge, and it is not subject to any great interference by a speculative public. I don't know that anyone is tempted either by sight or by taste to speculate with the majority of drugs. (Laughter.)

From earliest childhood we think that we have quite sufficient acquaintance with them, and I don't know that a near acquaintance makes them much more pleasant. Pharmacy, especially in large towns like this, has a great deal to say for the public welfare. Your Society, as I understand it, is the main instrument in setting in operation those precautions, those measures—precautionary measures—which are necessary for the purpose of seeing that drugs and other medicaments are such as shall be properly used in the Pharmacopœia. They also, I believe, experiment on their own account, and though I am not in possession of the actual details, still I am sufficiently conversant with the subject to know that they do keep a very careful watch over the regular and unlicensed practitioners. This is a work of no slight importance in large towns. Probably in nothing in past years—I speak under correction—have the public been more defrauded than in some remedies to which in critical times they have resorted. Contrast with the higher class of

medicines and other chemical ingredients which are purchased from high-class chemists the relative prices of the cheap, adulterated, and very frequently defective drugs which are supplied in the poorer portions of any large town, and it will be seen that a society like yours, exercising its influence and, if necessary, its authority, can undoubtedly do great good for the public welfare. (Cheers.) But it is not my province on this occasion to deliver an address on abstract principles. I only say these few words in welcoming you on behalf of the citizens of Liverpool because I venture to hope they show the importance which I personally know is attached to your Society. I have had experience of it in former offices in public life, and I am sure that all those who wish well to the country will wish well to a society like this, which goes its own way, minds its own business, does what it can for the public good, and advances the cause of science. (Cheers.)

The PRESIDENT proposed a vote of thanks to the Earl of Derby for his kindly welcome. After referring to the historic position of Lord Derby's family, he said it was a matter for congratulation that his Lordship had accepted the noble position of Lord Mayor of Liverpool. The Pharmaceutical Conference, he explained, was an unofficial body which visited important cities, and it was not like the Pharmaceutical Society, which had powers conferred upon it by the Legislature. They were an irresponsible body, who held meetings and had discussions in the different cities and towns throughout the country, and this was their second visit, as his Lordship had said, to that great centre of commerce. (Cheers.)

Dr. CHAS. SYMES (Liverpool), in seconding the vote of thanks, said he did so with pleasure, and at the request of the local committee, who desired him to give also their thanks to his Lordship for his presence there that morning. There was a popular notion that when a peer took an official position he got a good deal of honour, and acted as an orna-



THE RT. HON. THE EARL OF DERBY, G.C.B., LORD MAYOR

Brown, Barnes & Bell

31, BOLD ST.
LIVERPOOL.

ment] to that position, but that he did very little practical work. They in Liverpool, who had had the pleasure and satisfaction, and, he might say, the honour also, of having the Earl of Derby as their Lord Mayor for some time, were practically aware that that notion was false. He had been willing on all reasonable occasions to do his utmost to further and advance the interests of the city and to welcome and to assist all bodies who had visited the city, whether they had been scientific or otherwise—he had had the desire to advance the social position of the country. Therefore, knowing the large tax upon his time, the many acts he had had to perform, they felt especially grateful to him for coming there that morning to offer them a welcome. He was sure that his Lordship would accept their best thanks, especially those of the local body, for his presence there, and for the ready manner in which he had responded to their request.

The vote of thanks was carried with acclamation.

The LORD MAYOR, in reply, said he would but interpose for a few moments, as they were all desirous of hearing the President's address. He could only thank them sincerely, on behalf of his fellow citizens, for the recognition they had been good enough to make of the very slight services he had rendered in being there that day. He could assure them that personally he was very glad to be present, and, on behalf of the City Council, he could say that all citizens of Liverpool desired to join in the welcome that had been given. He had to apologise for the absence of those who ought to be within those walls. He thought that someone else would have been present connected with the University College to speak on its behalf. He could only say how glad his brethren of the College were to receive the members of the Conference within its walls. (Cheers.)

At 10.25 Mr. Martindale found the way clear for his presidential address, taken thus early for his lordship's convenience:—

PRESIDENT'S ADDRESS.

My Lord, Ladies, and Gentlemen. — Twenty-six years have elapsed since the British Pharmaceutical Conference in its annual peregrinations met in this great centre of commerce, second only to London in the Empire, and the present occasion is, in fact, a kind of silver wedding of its association with your city.

It is always pleasant to revisit a place where one has been well received and entertained, and as I am one of the few officers now remaining who took part in the proceedings of the Conference on its former visit, it was with mingled feelings of pleasure and sadness that I accepted the post of President on this occasion.

It is the second time that I have been chosen to fill the office, having been President at the Cardiff meeting in 1891, and as years roll on I look back with mournful memories on the buoyant hopes of twenty-six years ago, when, as a young man, I was beginning to take an ardent interest in all that appertained to pharmacy and its advancement. I do this with more poignant feelings of regret when I find that most of those whom I knew, or with whom I made acquaintance for the first time on that occasion, are now no more. First, the genial President, Mr. Stoddart, who had gathered round him a number of fathers of pharmacy of a past generation, has been called to his rest; so, too, have John Abraham, Robert Sumner, Sugden Evans, and John Dutton. One misses also the faces of John Williams, Sandford, Mackay, Brady, Dymond, Baildon, and Atherton.

Not the least memorable event connected with that anniversary was the lucid introductory address on "Biogenesis," by the late Professor Huxley, delivered to the British Association, whose meeting was held simultaneously with our own. We shall have his illustrious disciple, Sir Joseph Lister, delivering the corresponding inaugural address here within the next two months.

OUR FORMER MEETING IN LIVERPOOL

was one of the most successful the Conference has ever held; the membership during that year increased from about 600 to about 1,500. I am sorry that of late our roll has fallen off. I trust, however, that this meeting may fill our lists, as we are surrounded by a district that is more thickly populated than any other equal area in the world; so that I hope the endeavour to recruit our forces will be as successful as before.

Of the papers read on that occasion, the subjects of some continue to excite our attention; that on the purity of beeswax, for example, is still of pharmaceutical importance. It would appear that the artificial manufacture of comb foundations for the bee from paraffin was not then commonly known as a human industry, as it was not referred to, although many samples of the wax were then found to contain paraffin as an adulterant. That beeswax is a drug to a pharmacist, we cannot deny, and as the Legislature has entrusted the Pharmaceutical Society with the responsibility of granting the diploma to practise pharmacy, we are in duty bound to see that we fulfil our trust, and discharge the obligations that have been committed to our care. In so doing we shall fulfil one of the principal objects for which the Conference was founded—"to maintain uncompromisingly the principle of purity in medicine."

Another interesting feature of the previous Liverpool session was a pharmaceutical exhibition held in connection therewith, in which local, as well as a number of other British and foreign manufacturers, were exhibitors. This was a successful display, and as free from objectionable details as any that have been held. I draw special attention to this exhibition because on that occasion it was the first opportunity that I, as well as most who attended the meeting, had of seeing and

testing the physiological effects of what was then little more than a curiosity—viz, amyl nitrite. Its action had been demonstrated by Brunton and others, but it was almost unknown to physicians at that period—in 1870. Mr. John Williams kindly allowed members to try its effects, and to appreciate as well as show to others its action when inhaled or swallowed in flushing the face, and he informed us that it had been used to relieve the spasms in angina pectoris. We have now quite a cluster of these nitrogen compounds used as arterial dilators—isobutyl nitrite, sodium nitrite, nitroglycerin, hydroxylamine, and, most recently, erythrol nitrate, and mannitol nitrate.

PROGRESS IN PHARMACY.

What advances have been made in pharmacy and medicine since then! At that date the first British Pharmacopoeia that had proved successful had been published about three years, and was then making its influence generally felt.

We may take the year 1868 as the commencement of a new epoch, the beginning of a great physiological and chemical awakening in regard to the uses of chemicals as medicinal agents. It was also memorable by the passing of our Pharmacy Act and the inauguration of a system of com-



MR. W. MARTINDALE.

pulsory examination and registration. I have had experience of the condition of pharmacy and medicine both anterior and subsequent to this time, at which I was engaged in hospital work, and can therefore speak from personal acquaintance with the conditions prevailing then and at the present time.

It will be interesting to reflect how we have progressed since that date. Approximately it may be shown by comparing the Pharmacopœias. The London Pharmacopœia of 1851 had been in use until 1867; it is well known to you; compare its size with that of our last British Pharmacopœia—I have here a copy.

But adhering to our date, 1868, let me draw your attention to the important medicinal agents that are now largely used, which were then either not in existence, or were mere chemical curiosities. I have already mentioned amyl nitrite and the nitrites. Chloral hydrate was first exhibited at our Exeter meeting in 1869 by Daniel Hanbury, and by the following year it had created a great sensation. Its homologue, butyl-chloral hydrate, has also since been largely used. Boric acid was but a chemical rarity previous to 1875; it is now produced in tons for medicinal use, as well as for the purpose of preserving milk and foods. Regarding the desirability of the latter use of it, there may be difference of opinion, but there can be little doubt of its utility and value in hot climates, although it is being superseded by a new competitor in the field—formic aldehyde. Iodoform, too, was then but little known, and now makes its presence too evidently perceived by those who hopelessly try to have its odour disguised. With regard to carbolic acid, the crusade against the septic conditions prevailing in hospitals had commenced about this year—*i.e.*, 1868. The use of salicylic acid for the same purpose began in 1876. Salicin, obtained from the indigenous willow, although well known, was little used till 1876. The eucalyptus-products were comparatively unknown here until about 1880. Menthol and thymol also, although known, were not used at the period I refer to. The introduction of the various forms of soft paraffin likewise come within this period. In this connection it is curious to recall a statement made at our last Liverpool meeting, that "the effect of the application of paraffin to the skin, though probably not injurious, if used as an adulterant of beeswax, is not sufficiently known to render its presence a matter of indifference." The medicinal use of the oleated compounds of mercury and zinc was introduced by Professor Marshall about 1870.

The mydriatic alkaloids, atropine, hyoscyamine, and scopolamine, were not then defined: the useful synthetic product homatropine had not been formed, nor had the myotic alkaloid physostigmine from the Calabar bean come into use. These have rendered immense service in ophthalmic surgery. The chemical properties and therapeutic uses of jaborandi and pilocarpine, of coca and cocaine, of coto and cotoin, of strophanthus and strophanthin, of gelsemium and gelsemine, of apomorphine, caffeine, cascara, chrysarobin, emetine and cephaeline, of piperazine, saccharin, and sparteine have all been investigated within the period named, while the synthetic alkaloid eucaine now claims to be a rival of cocaine as a local anæsthetic. These two substances, eucaine and cocaine, are constitutionally allied, and probably others having similar properties will be formed. The now well known synthetic coal-tar products, acetanilide, antipyrine, phenacetin, and phenocoll, are entirely new to medicine. Naphthalin, which was principally known as a nuisance in blocking our gaspipes, has proved to be a valuable intestinal antiseptic; so also have its derivatives, naphthol and betol; these, as well as the preparations of guaiacol, now largely used, were all then unknown as medicinal agents. Aconitine, which was then undefined, impure, and costly, has been proved to have the constitution of acetyl-benzoyl-aconine, and can now be obtained in a pure crystalline condition at a moderate price; and pseudaconitine, from Nepal aconite, has now been defined as having the constitution of acetyl-veratryl-pseudaconine. Of alcoholic derivatives the sulphonated products of methane—sulphonal, trional, and tetralol, together with paraldehyde and urethane—have found favour as hypnotics. As a general anæsthetic ether has to some extent replaced chloroform, which was almost solely used at that time, while for local anæsthesia the chlorides of ethyl and methyl have come into

use with considerable success. Of late years oxygen for inhalation has come extensively into use as a remedial agent, and the production of it from atmospheric air is now a large industry.

LOWER PRICES FOR MEDICINES.

About the period I have referred to, or during the "sixties," the use of bromide of potassium for epilepsy, insomnia, and other nervous affections was introduced, and it is curious to observe the variation in price that this salt has since undergone, and how, owing to the large demand for it, its market value has been reversed in comparison with that of iodide of potassium. It is true the price of the latter is fictitiously kept up, and medicinal demand is probably not the only cause, as both these salts are used in arts and manufactures, but the increased medicinal use of the bromide was one factor, and the working of the Stassfurt Spring source another, which led to the reduction in the cost of its manufacture. Still, drugs and chemicals, like other articles of commerce, are affected by rings, corners, syndicates, and combinations which, notwithstanding the cheapening effect of the large demand I have mentioned, have had a counteracting influence on the reduction in price of such articles as iodine, cocaine, mercury, camphor, and bismuth.

Another, and perhaps the most prominent, instance of reduction of price by large demand, although it is true it has not the same strictly pharmaceutical bearing, is afforded by the revolution caused by the adoption of the ammonia process for the production of bicarbonate of sodium, which has in great measure replaced the Leblanc process, and which in its turn has, seriously or not, been threatened by the production of alkali by electrolysis.

This factor—the lessening of cost of production—has not always the same bearing with regard to the popular use of medicines that it has in commercial economy; for example, quinine, which is still at a very low price, is not used in the popular way in this country to anything like the extent that it was when its value was five to ten times what it is now. The public and the medical faculty have no reason to complain of the costliness of drugs at the present time. When required in quantity or for hospital use, they are with few exceptions supplied at much lower prices, as well as in a state of greater purity, owing to more extensive manufacture, commercial enterprise, and chemical ingenuity than was possible twenty-six years ago.

SHOULD NOT AFFECT PHARMACISTS' PRICES.

But the cost of distribution, which is not merely a trade distribution, has to be taken into consideration; here the comparatively small demand for most of the articles used in medicine precludes the distributor or retailer from supplying them to the public at a commensurate reduction in price, as the judgment necessary in the distribution of medicines, many of which are poisons, and the care and skill requisite in their manipulation, has necessitated the careful and scientific training of those who deal in them. The pharmacist has, in fact, to be paid for safeguarding the public by not selling where it would be to their detriment or danger, although to his immediate advantage. In the interests of the public the sale of certain poisons is entrusted to him alone, and he is ethically bound to exercise a discretion therein, and thus to restrict his trade where it might be to the public danger. It is not merely the quantity or price of the article that affects the purchaser's decision, so much as that without any doubt or uncertainty the exact substance required shall be supplied to him. This weighs on his mind, and he has to trust in the probity and judgment of his pharmacist where he would not necessarily have to rely on these qualities in an ordinary trader. The pharmacist, therefore, as a chemist, must be worthy of this name, and it is now legally held that in all cases the individual seller of a poison must be a qualified and registered person. The pharmacist has the responsibility of selling poisons as well as other medicines, and his care and attention both in storing and selling them needs to be continually exercised. Not only so, but he must be a judge of the quality as well as chemically able to test his wares, of which the public, in most cases, can be no judges. Hence his remuneration is not for material supplied but for special service rendered, and is therefore in many cases out of proportion to the actual com-

mercial value of his commodities. This applies to the simple sale of drugs, though the argument is much stronger when applied to the compounding of medicines. The special training, therefore, of the individual seller or compounder must necessarily enhance the cost of medicines to the public, who are safeguarded by such training.

ELEGANT PHARMACY.

The examples I have referred to of the progress we have made have been principally due to chemical research in isolating the principles, as well as investigating the possible combinations chemistry will afford us. This has been mostly done by analytical processes in determining the definite factors contained in or obtained from the crude materials Nature supplies us with, and using them in a state of the utmost purity possible. But when we have so obtained them it is further necessary to prepare them in a suitable form for administration or medicinal use. I consider this is the special art of pharmacy of the present day, and may be regarded as syncretical pharmacy in contradistinction to the old galenic methods that obtained currency in former times. For example of the latter, take the Aherneithian cathartic saline, commonly known as "Black Draught" or *Haustus Domesticus*. The senna was exhausted by infusion, the Epsom salt added, and the taste disguised by aromatic correctives and liquorice. Now we have our active principles and chemicals so purified or reduced to such small bulk that our chief aim is to preserve or dilute them in such form as to render their medicinal use safe and convenient. This lends itself to the development of "elegant pharmacy," to which I referred in my last address.

I may be pardoned if I mention as examples of such preparations some to which I have devoted much attention. Amyl nitrite, before referred to, has been, as you are aware, carefully investigated and chemically defined. It is exceedingly volatile, and as a consequence inconvenient for the patient's use unless kept hermetically sealed in glass tubes. A better example is nitroglycerin; formerly only capable of being kept for medicinal use in alcoholic solution, which owing to the evaporation of the alcohol might be of uncertain strength, but a solution of it in the fat of chocolate, and the division of this into the official tablets of nitroglycerin, have rendered it possible to provide the patient with a means of its administration which is stable and portable. Poisonous alkaloids and active principles also, whose doses are often so minute as to be reckoned by hundredths of a grain, require the utmost care in weighing and compounding.

Pharmacy being the handmaid of medicine, it is our duty to aid the medical practitioner and to be in touch with his requirements wherever our assistance may be of service to him. The application of the pharmacist's art can and should in numerous ways help him much more than is the case at present, although great advances have been made in this respect within the period I have been considering.

The use and abuse of hypodermic injections, and the introduction of tablets for preparing these, come almost entirely into this purview, so also do medicated suppositories and other similar topical applications. Compressed tablets had been introduced and almost gone out of use again, to be re-introduced by illimitable advertisements in these latter days. Plasters have been improved by using different bases to the official ones—these and salve mulls seem to meet a requirement in dermatology. Medicated lint and wools and other antiseptic dressings have been largely used; and, although strictly belonging to the pharmacist's domain, the sale of them has been largely diverted into the hands of the surgical-instrument dealer. Their use is now to some extent being replaced by aseptic dressings, which have been sterilised by means of heat. As to the merits of the latter it is not my province to speak definitely, but in large hospitals, where they are mostly needed, which are filled with diseases in every stage of treatment, and antiseptics have a hard fight with so much that is septic, it will be difficult to preserve their asepticity and prevent their contamination. Antiseptic medicaments will therefore still continue to be used; and in devising dressings and applications to meet surgical requirements, as well as other aids to medical treatment, the dual training in the same individual of the medical practitioner and pharmacist is often desirable. The former needs the aid and co-operation of the latter.

MEDICAL MEN AND PHARMACOLOGY.

This combined training is now becoming most difficult, and is much neglected, owing to the action of the medical examining boards, especially the conjoint board of the Royal Colleges of Physicians and Surgeons of London, which I referred to in my address to the Conference at Cardiff. For their examination there is now no stipulated time required to be devoted to the subjects of pharmacy and materia medica, or even to chemistry. All that is necessary is that the students' schedules are signed. There is no examination at all in practical dispensing, and now there is no separate examination in pharmacology, which may be defined as the knowledge of the physiological and therapeutic action of drugs, or the action of medicinal agents on the body in health and disease, so that a student may pass his qualifying examination, in which this subject—pharmacology—only forms a section of Part I. (Medicine), knowing comparatively little or nothing of it. So much is pharmacology decried that it is suggested that "room may be found for questions in abstract therapeutics if, in the opinion of the examiners in medicine, such questions are desirable."*

This new departure is certainly casting discredit on the use of medicines as a factor in the healing-art. "In five or six years hence," a medical writer† has said, "we shall have growing up around us men who, from sheer timidity, will rarely venture to prescribe anything but the simplest remedies," and "the unfortunate qualified practitioner," after devoting "the best years of his life to the acquirement of much useless knowledge . . . ignorant of the means of alleviating the sufferings of his patients, will in despair fall back on the preparations of the advertising chemist."

Having obtained little knowledge of the chemical and pharmaceutical nature of drugs, many of our medical friends are thus losing faith in their medicinal weapons.

The "pursuit of principles or of abstract knowledge" may "be put to the front,"‡ but in the meantime the value of empirical therapeutical facts must not be ignored.

To quote Dr. Gowers, in at least four-fifths of the practice of the average practitioner § "the therapeutic means" he "can employ," except in acute cases, "are almost limited to the administration of drugs," and "in most cases" such treatment does "not only a definite but a great amount of good."

Still the medical mind searching for facts is apt to be prejudiced against the belief in medicines; it is sceptical that so little can do so much good. On my describing to a medical friend the first effect of amyl nitrite on myself, and suggesting his using it for angina pectoris, as I have mentioned, he ridiculed the idea of its ever being able to relieve that affection. Although pharmacy has progressed, there is reason to complain of the present medical neglect of medicines by many of the leading professors of the art; their appreciation of drugs, I think, is not commensurate with the progress I have referred to. A more harmonious co-operation of medical practitioners and pharmacists is necessary if they and we are to be of the service to the public in the way which I consider our mutual positions would indicate.

We are not, unfortunately, in the same position as continental pharmacists—that of being almost the sole purveyors to the public of the medicines prescribed by medical practitioners. There a protecting Legislature, on the ground of public safety, insists on the pharmacist occupying an intermediate position between the prescriber and the patient, in a way which to British ideas of freedom would be considered in a manner intolerable. This would have restricted the supply of medicines, *plenam ad nauseam*, which was customary half a century ago by general practitioners.

MEDICINAL SPECIALITIES.

On the other hand, such is the credulity of the public, the popular belief in the virtues of drugs and the persistent attraction exercised over them by manufacturers extolling their wares by means of broadcast advertisements, that they become large consumers of special medicinal preparations of the composition of which they have no knowledge. As

* *Brit. Med. Journ.*, i., 95, 562.

† Murrell (*Pharm. Journ.*, vol. i., 1893, p. 219).

‡ *Brit. Med. Journ.*, i., 96, 1235.

§ *Lancet*, vol. ii., 1895, p. 1271.

illustrating the extent to which the demand for such articles of unknown composition has increased—you will remember that I showed you the Pharmacopœia in force thirty years ago, to compare with the present British Pharmacopœia—I have here the catalogues of an old-established firm [Messrs. F. Newbery & Sons] dealing in these preparations for the years 1868 and 1896. Compare the size of them also.

Pharmacy has advanced, but in its growth it has become changed.

Bubbling spring had a daughter—tiny rill—

which increased to a stream, and eventually, before joining the sea became a majestic river, on which the commerce of a nation floated, but it had no longer the pristine purity with which it rose. The position of pharmacy has a tendency to become thus contaminated. Its true vocation is in aiding medicine, in which it has an ample field for noble aspirations.

Still, although many nostrums of which I have spoken are not produced by qualified pharmacists, a great many of them have been devised and are prepared by the pharmacist which are most useful and beneficial specialties, or they would not find so large a sale. Too frequently where little or no dispensing falls to the lot of the pharmacist they are the backbone of his business, and their loss would be a public calamity; they supply the "little needs" of the public, which "little needs" would otherwise be medically neglected.

Please further do not misunderstand me, I do not advocate the medical prescribing of drugs merely because the public crave for them, but the pharmacological investigation of facts empirically obtained, and the making use of these in the treatment of disease is surely one of the highest aims of medicine.

THE FUTURE OF PHARMACY.

I have spoken of the immediate past of pharmacy, as well as of pharmacy present; over its future there hangs a veil which I will not attempt to lift. I have, for example, not touched on the subject of the organic serums and lymphs, and animal extracts. Hitherto the direction of pharmacy has been towards the use of definite chemical compounds and active principles; the new departure is a complete deviation from this line, the substances I have referred to being of that chemically indefinite nature that their activity can only be ascertained by pathological experiment. In my Cardiff address I referred to the medical use of various lymphs, of which I said the preparation might one day form part of the occupation of the pharmacist. The preliminary investigations must of necessity be carried out by the physiologist, but the chemical work now falls to the lot of the manufacturing chemist, and as patient physiological investigations are necessary, they are principally prepared in Germany, under medical supervision, and without the vexatious interference of the Vivisection Act.

The revision of the British Pharmacopœia is in progress, but, as I am appointed to assist in this great work, I cannot do more than mention the fact. I have already pointed out to you its increase in size in passing through various editions. It is to be hoped that this continued increase will be kept within bounds—that, in the multiplicity of preparations of some drugs a selection of those most frequently in use only may find admission, and that obsolete drugs may be conspicuous by their absence. One great advance will be the introduction of metric weights and measures; the formulæ will be expressed in terms of both the imperial and metric systems.

Nor can I touch on the subjects of education and examination as applied to pharmacy, both of which are *sub judice* in the Council of the Pharmaceutical Society. At present our system of education is generally imperfect, because it is not graduated and systematic, and the greatest blot on our examinations is our inefficient Preliminary, which continues to be accepted as the almost universal matriculation to our craft.

It is not my province either to touch on trade politics or trade interests, nor to review the interesting scientific discoveries that have surprised the civilised world during the past twelve months, such as the x rays and their marvellous power of penetration, the employment of acetylene gas obtained from carbides for lighting-purposes, and the use of incandescent substances, either in the form of mantles or

otherwise, for the more perfect combustion of coal-gas, which enables the latter still to vie with electricity as a source of light, and renders it less noxious and destructive to the purity of household and other decorations. Nor need I mention argon and helium; the discovery of these elements belongs to pure chemistry and physics.



FOUR FAMOUS INVESTIGATORS.

I began by referring to the absent ones; our death-roll for the last year includes a number of members; amongst these is my old friend and colleague on the Examination Board, Mr. Linford; but taking the wider period, that since the Conference last met in Liverpool, three of the four most illustrious men whose labours on biology, and indirectly on medicine, surgery, and pharmacy, have given them world-wide renown, have gone to their rest—Pasteur, Darwin, and Huxley. Happily Sir Joseph Lister still lives. I have previously referred to the latter two. These four have made names most enduring to scientific fame by their work, crowned with the most beneficent effects, in searching for the origin of the lower forms of life, checking the progress of zymotic diseases, and rendering operative and conservative surgery safe beyond the dreams of Liston or Sir Astley Cooper. But

Only the actions of the just
Shall live and blossom in the dust.

This is too often the case: we fail to revere sufficiently the memories of the great men with whom or for whom we have worked, unless aided by evidences of their labour appearing frequently before us. We are, for example, assisted to do this by their handwriting and their autographs—beholding these, their presence becomes mirrored before us, and when young we catch their enthusiasm, and become inspired to emulate their deeds. I had the pleasure of some acquaintance with this illustrious quartette, and their autographs are now before you. Perhaps these may encourage our younger members to follow the writers in their patient, laborious, and conscientious work. Their handwriting is present, but the wider results of their labours are to be seen where health is restored to the hectic cheek, to the scrofulous, or to the patient threatened with hydrophobia—to the clustered vine with its luscious fruit, or to the silk worm spinning its cocoon to be used to adorn the peasant or to deck a queen.

The reading of the address occupied thirty-three minutes, and a number of passages in it were applauded.

THE PRESIDENT IS THANKED.

MR. N. H. MARTIN moved—

That the very best thanks of this Conference be given to Mr. Martindale for his extremely interesting and able address.

When it was known, he said, that the Pharmaceutical Conference would this year meet for the second time in the important city of Liverpool—the second city in the Empire—there was great anxiety to know who would perform the functions of President of the Conference. When it was known that they would have as President Mr. Martindale the Executive of the Conference naturally felt relieved from all responsibilities, because they felt that upon no man could they rely more explicitly for the weal of pharmacy in that Conference to be upheld than upon Mr. Martindale. The phrase "able and interesting address" was naturally a trite one, and in many cases it would be a formal one. But when they had a man who for many years had been so steeped in pharmacy as had Mr. Martindale, who had led the van of all the new discoveries and in making known the new remedies introduced into medicine, the address was sure to be interesting. That it would be able they knew from past experience of Mr. Martindale. It would be quite impossible to review an address so full of matter and so pregnant for future thought as that which the President had delivered, and he should not attempt it. They would all have an opportunity of seeing it in print, and of doing what he should do—perusing it very carefully, and taking home to themselves the suggestions that were contained in it, as well as reviving and increasing their own knowledge by its perusal. He would not detain them, because there was a great deal of business

before them; but he was sure that they would most heartily accord a vote of thanks to Mr. Martindale for his address. (Cheers.)

Mr. S. R. ATKINS said he had been asked by the senior Secretary to perform the very pleasant duty of no small honour to second the vote of thanks which Mr. Martin had proposed. That gentleman very properly said at the close of his remarks that it would be very unwise of them at that moment to attempt to interfere with the important business now before them, but he wished with the utmost heartiness which was possible in the very brief space to say how very cordially he endorsed the vote of thanks. They felt that the President, in preparing his address, had no small difficulty in selecting a topic. He could not but think that the President had been most happy in the selection of the line of thought in taking a review of the last twenty-six years, and where in the world could it be so properly reviewed as in the city of Liverpool? He (the President) spoke upon that point with an authority that few could command; he spoke with a practical knowledge before which they all bowed with the utmost respect; and he thought if they took those two factors—the subject which he had chosen and the mode in which he had approached that subject—they would agree that their best thanks were due to him. They would allot him the highest form of gratitude by most carefully pondering, as they would do, his address. Without occupying more time he desired most heartily to second the vote of thanks to the President.

Mr. T. B. GROVES, senior Vice-President, then put the vote to the meeting, and the motion was carried amid applause.

The PRESIDENT, in reply, said he heartily thanked them for their patient hearing of him. As Lord Derby had other duties to perform they would relieve him, and he again thanked him for his kindness in attending there that day.

The Earl of Derby then retired, the members standing, and a minute or two elapsed before business was resumed with

APOLOGIES FOR ABSENCE.

These came from Mr. Walter Hills, President of the Pharmaceutical Society of Great Britain; Mr. Richard Reynolds (Leeds), Mr. Wm. Hayes (Dublin), Mr. J. A. Anderson (Glasgow), Mr. Johnston (Aberdeen), Mr. Chas. Umney (London), Mr. Gibson (Brighton), Mr. Sudlow (London), and Mr. John Harrison (Sunderland).

RECEPTION OF DELEGATES.

Mr. RANSOM (junior Hon. Secretary) read the following list of delegates:—

Pharmaceutical Society of Great Britain.—President, Vice-President, Treasurer, Messrs. Allen, Atkins, Bateson, Carteghe, Cross, Grose, Johnston, Lescher, Martindale, Newsholme, Park, Savory, Southall, Symes, and Young. North British Branch.—Mr. J. Laidlaw Ewing (Chairman), W. L. Currie (Vice-Chairman), Messrs. John Bowman, George Coull, B.Sc., Davidson, Chas. Kerr, George Lunan, T. Maben, D. McLaren, J. Meir, and the Assistant Secretary (J. Rutherford Hill).

Pharmaceutical Society of Ireland.—The President (W. F. Wells), G. D. Beggs, Conyngham, Hayes, Kelly, Robinson, Payne, Guiler, McKnight, and Moffat.

Bristol Pharmaceutical Association.—Messrs. Berry and Schacht.

Edinburgh Chemists', Assistants', and Apprentices' Association.—Messrs. Coull and Duncan.

Liverpool Chemists' Association.—Messrs. Conroy, A. C. Abraham, T. F. Abraham, J. Bain, A. S. Buck, Cowley, Dutton, Hocken, Smith, Symes, Thompson, Wardleworth, Willings, Wokes, and Wyatt.

Liverpool Pharmaceutical Students' Association.—Messrs. Wokes, Jackson, Last, Marsden, Mitchell, Morgan, and Walker.

London Chemists' Assistants' Association.—Messrs. Robins, Strother, and E. A. Umney.

Manchester Pharmaceutical Association.—Messrs. G. S.

Woolley (President), Kemp and Kirkby (Vice-Presidents), W. Bowden (Treasurer), Cooper, Johnstone, Lane, Pidd, Pratt, Smith, Wild, and Young.

Sunderland Chemists' Association.—Messrs. Purse and Rankin.

Exeter Association of Chemists and Druggists.—Mr. Lake.

Bradford and District Chemists' Association.—Mr. Silson.

Glasgow and West of Scotland Pharmaceutical Association.—Messrs. W. L. Currie (President), John Foster (Vice-President), Brodie, Watson, McMurray, and Fraser.

Cambridge.—Mr. E. Saville Peck.

Midland Pharmaceutical Association.—Messrs. Bates, Darton, Gibbs, Thompson, Prosser, Cross, Wilsey, Gibson, Brevitt, Hutton, and Allcock.

It must not be considered that the whole of these gentlemen were present (compare the list on a subsequent page).

Mr. NAYLOR (senior Honorary Secretary) then read the

REPORT OF THE EXECUTIVE COMMITTEE.

which stated that the Committee believed that there is abundant evidence of the continued usefulness of the Association, but it was to them a matter of regret that the subscriptions show a falling off as compared with the previous year. Although a large number of members had been elected many old names have been removed from the register on account of resignations or lapsed subscriptions. The Committee has on several occasions seriously considered whether means could be adopted to reduce the expenses and at the same time to introduce changes which might tend to an increased membership, and during the past year the possibility of reduction in the cost of the "Year-book." As a result it was decided that the following alterations should be made:—The "Bibliography" being a section, it was believed, which was not much valued by members, would in future be omitted. In order to increase the usefulness of the section "Notes and Formulæ" it was resolved that mention should in future be made, as far as possible, of all new remedies introduced during the year. The Secretary was authorised to curtail the reports of the discussions of papers read at the Conference meetings, and also, where possible, to condense the accounts of the social functions. The cost of printing and binding was considered, and as a result of the communications with the printers a reduction in the cost of certain items would be effected. The "Blue List" had again been subjected to revision, and some additional subjects for investigation had been included. No applications for money-grants had been received during the year; members were reminded that assistance in this direction was always available for expenses in pharmaceutical research. During the past year the Conference had lost sixteen members by death and twenty-nine by resignation, while sixty-nine new members had been elected. By the death of Mr. J. S. Linford the Conference had lost one of its older members, who was regular in attending the meeting and who frequently contributed to the value of the discussions by giving the results of a long and valued experience in practical pharmacy. Mr. Louis Siebold, F.I.C., F.C.S., had been reappointed editor of the "Year-book," and MSS. of Parts I. to IV. was now in the hands of the printers. The reception of the President and Local Committee, which was held on the previous night in the Walker Art Gallery, was much appreciated by a large number of members and their friends.

Mr. JOHN MOSS, in submitting his

FINANCIAL STATEMENT

as Treasurer, referred to the fact that the decrease in membership had been going on for ten years, so that it was not a new thing. During the past year efforts had been made to increase it somewhat, and so far they had been successful. But if the effort had been continued it would have been an advantage. A scheme was being considered which he hoped would have a good effect. All that they needed was 200 more members, when they would be able to pay expenses. He asked each member to get not a fifth of a new member—(laughter)—but a whole one, as then they would get along nicely.

deserves investigation, considering its singular energy and peculiar effects as a poison."

In 1868 and 1869, the late Dr John Harley, prompted, as he says, by the fact that "he had frequently prescribed very large doses of conium preparations in vain," was led to look into the matter. He made a most thorough and complete investigation of the whole question, and his results are recorded in the *Pharmaceutical Journal* for the above-mentioned years. Harley's experiments were mainly of a physiological character, and although attempts were made to determine the amount of conine in some of the drugs operated upon, the methods employed were crude, the final product certainly impure, and the results consequently unreliable. The physiological experiments consisted in the administration to Dr. Harley and his patients of all the official preparations in doses gradually increased until the alcohol began to take effect. Tincture of the dried ripe fruit, the leaf-tincture of the London Pharmacopœia, and the juice of the root were all taken in doses of from 2 to 12 or even 16 fl. dr. without effect. The solid extract, then, as now, made by evaporating the juice of the leaf, was also administered in doses of from 10 to 20 gr. and found to be inert. In fact, the only preparation with which distinct hemlock effects could be obtained was the leaf juice, which in doses of from 3 to 6 fl. dr. was found to be active. The conclusion which he arrived at is thus stated: "Having distinguished the succus from the iuert tinctures, I trust that these will henceforth be excluded from the Pharmacopœias, and that medical practitioners will rely solely upon the succus, which, in the compactness of the dose required, in the absence of any objectionable taste and odour, and in the potency and certainty of its operation, leaves nothing to be desired."

The only ground upon which Harley's elaborate investigation lies open to criticism consists in the fact that while in his experiments on the leaves and root the English-grown drug was employed, he appears to have been compelled to go to Germany for the fruit. According to Harley, at that time all the conium-fruit used in British pharmacy was obtained from Germany. But the authors could not corroborate his opinion that "doubtless the German fruit is equally potent with that of British growth," for their experience of the commercial German fruit shows it to be very much inferior to that collected in Britain. Long prior to this, Christison had pointed out, contrary to the statement of Geiger, the discoverer of conine, that the green is more active than the mature fruit, and the same idea seems to have occurred to Harley. He says: "We know that the active principle of the poppy is more abundant in the circulating juices of the green fruit than in any other part of the plant, and that the quantity contained in the fruit diminishes in proportion as it becomes hard and dry. It is very probable that this is the case with conium, and that we must look for the greatest accumulation of its active principle in the immature fruit." That this view was correct was abundantly confirmed both by Dr. Maullus Smith, of New York, and also, subsequently, by Harley himself. In a further note, contributed to the *Practitioner*, he clearly proved the superiority of the green over the ripe fruit, and advocated its exclusive employment for pharmaceutical purposes. "If our pharmacutists," he says, "remain blind to their interests, medical men must help themselves, and annually rear a dozen plants in some waste spot of their gardens. These will yield them a pound of green fruit, from which, with a very little trouble, may be made a tincture stronger than any juice that can be produced, and an extract of which 3 gr. would produce decided effects in most persons."

Up to the year 1837 no work had been done on the pharmaceutical side of the subject at all commensurate either in extent or importance with that carried out on the medical side. In that year, however, a process was devised by Cripps for the gravimetric determination of the alkaloids in hemlock-fruit, consisting in the isolation of the alkaloids and their conversion into hydrochlorates. This process was subsequently adapted by the authors for the estimation of the alkaloids in the tincture, and they have since carried out investigations on this and other points connected with the pharmacy of conium.

In order to render the investigation, from the pharmaceutical standpoint, more complete, and to contribute somewhat towards the placing of the pharmacy of the drug upon a

more satisfactory footing, they determined to obtain fresh specimens of the hemlock-plant in different stages of its growth and to ascertain the alkaloidal value of the different parts of the plant.

These specimens were obtained, through Mr. Francis Ransom, from Uckfield in Sussex, from Hitchin, and from Ashford in Derbyshire during May, June, and July of the present year. The *modus operandi* for their treatment was as follows: The different parts of the plants were carefully separated and dried at a low temperature. A weighed quantity of the well-powdered material was then macerated in ten times its bulk of alcohol of about 70-per-cent. strength for seven days with frequent agitation; a measured quantity of the tincture was then filtered off and treated by the process described in the *Pharmaceutical Journal*, Series III., vol. xxi., p. 859. The necessary correction was subsequently made for loss of moisture incurred in drying, so that the results might represent the percentage of alkaloids in the fresh herb.

TABLE I.—*Source of Fresh Plants and Percentage of Alkaloidal Hydrochlorates therein.*

Stage of Development.	Source	Roots	Stems and Stalks	Leaves	Flowers with Peduncles	Green Fruits
Young, 4 to 6 in. high	Uckfield	0.7	0.17	0.31	—	—
Before flowering, 4 ft. high	Hitchin	0.22	0.19	0.20	—	—
Incipient inflorescence, 3 to 3½ ft. high	Uckfield	(a) Cortex 0.31 (b) Axis 0.32	0.37	0.90	—	—
Full flower, 5 ft. high	Uckfield	0.0	0.64	0.17	0.36	0.75
Ashford		0.18	0.12	0.75	0.06	0.75
Loss of weight on drying	—	77	86	79	80	68

Those results are shown on Table I. They bear out the statement of Christison, Smith, and Harley, and fully support their conclusions. Six samples of the succus were also obtained and the alkaloids determined. Details of the process of estimation followed are given in a separate note.

TABLE II.—*Showing Percentage of Alkaloidal Hydrochlorates Yielded by Different Samples of the Fresh Green Hemlock fruit.*

Year	1	2	3
1832	0.975	0.935	—
1834	0.96	1.049	1.083
1835	0.75	0.975	—

Referring to the standards of strength at which it is desirable to aim in producing pharmacopœial preparations of the drug for internal use, the authors stated that their calculations are based upon the average dose of conine, which may be taken at from ½ to 1 gr. For a tincture having a fixed dose of from ½ to 2 fl. dr. and the minimum dose of which should contain approximately ½ gr. conine, the alkaloidal strength should be about 5 per cent. If the dose were fixed at from 5 to 20 minims a preparation would be required containing approximately 2.5 per cent. of alkaloids. And upon the same basis of calculation, an extract having the dose indicated in the British Pharmacopœia—viz, 2 to 6 gr.—ought to contain from 5 to 7.5 per cent. alkaloids.

How does the case stand so far as regards the official preparations of conium? A 1-in-8 tincture made from commercial samples of hemlock-fruits could not contain on an average more than 0.36 per cent. of alkaloidal hydrochlorates. The succus, which is the most important preparation of all, seeing that from it either directly or indirectly all the other pharmacopœial preparations except the tincture are made, yields on an average only 0.27 per cent. alkaloidal hydrochlorates. The solid extract, which is most frequently used of the official preparations,

seldom contains more than 1 per cent. alkaloids. Squire, in his well-known "Companion," remarks on the uselessness of the official doses of the succus, and states that it may be prescribed by the ounce. It is a somewhat caustic commentary upon this settlement to read immediately below that in evaporating the juice in the preparation of the ointment, "contrary to what might have been expected, the alkaloidal strength of the juice is not affected by the evaporation." Taking the above facts into consideration, the authors come to the conclusion that there is not in the British Pharmacopœia at the present time any preparation of the hemlock-plant which really represents the medicinal activity of the drug. Further, they submitted that the time has come when, in the interests of pharmacy and medicine alike, the employment of the succus, whether as a remedial agent, or as the source of the other preparations of the drug, should be discontinued. They also maintained that in the case of a drug like conium, in which the alkaloids are distributed through the different parts of the plant in such unequal and uncertain amount, except in the unripe fruit, in comparatively small proportion, we should go to the part richest in active principle, and to that alone, for our representative preparations. They hold that the cardinal preparation of this drug in the next edition of the British Pharmacopœia should be looked for in a concentrated fluid extract of the unripe fruits prepared with a 70 or 80 per cent. alcoholic menstruum. From this probably all the other necessary preparations might be made.

The question may be asked, "Cui bono?" Why bestow so much pains and labour over a series of preparations which are so seldom prescribed? The obvious reply is that it is for the members of the medical profession to decide what is or what is not to be included in the national Pharmacopœia. The duty of the pharmacist is to make every preparation in the Pharmacopœia as nearly perfect as the art of pharmacy can make it. For it is only by placing the practice of pharmacy upon a scientific basis that we win for pharmacy a province within which she will be free to act, and thus ensure the favour of the members of the medical profession, whilst securing ourselves against the encroachments of the unscientific trader.

DISCUSSION.

1144. The PRESIDENT, in opening a discussion upon the paper, said that conium had a most peculiar reputation. At one time it was regarded as a valuable drug, at another as a dangerous poison, and now they were to consider whether it was not almost inert as a medicine.

Mr. W. G. CROSS said his experience was identical with that of the author's. It was the weak nature of the succus that caused it to be so little used in medicine. A medical friend of his had used the succus, and it was not until he had gradually increased the doses that he obtained the results that he desired. Now, however, he used it regularly, and he had faith in it. He was interested to hear what had been said in regard to the unripe fruit being the most potent part of the plant. He grew it himself in his garden, but he noticed that, unless he was very smart in collecting it, the aphids got before him. This year he had some beautiful plants, 8 to 10 feet high, and when he went to collect them he found that the aphides were before him. The aphids was of a peculiar nature—something like a bean-aphid, and very voracious. He considered that the paper was one of great value.

Mr. T. B. GROVES said that in presence of the great difficulty of obtaining a useful product from the living plant why should they not go to the alkaloid, which was now obtainable apart from the plant, and give it in proper doses? His experience was, however, that the drug had gone out of fashion.

Mr. F. C. J. BIRD thought that the authors had done well by enforcing that the preparation should be taken out of the Pharmacopœia. It did not keep. He had often noticed Squire's statement in regard to the preparation of the ointment, and in connection with that he remarked that in making the ointment in his laboratories he observed that a strong odour penetrated the apartment. He asked Mr. Wright if he could say whether that was not an indication of loss of principle?

Mr. ELBORNE, speaking at the back of the lecture theatre, was understood at the reporters' table to state that he had

considerable experience in making the ointment, as several of the physicians at University College Hospital had been using it in view of the revision of the Pharmacopœia, and the results that they had obtained went to show that the ointment was far from being inert.

Mr. N. H. MARTIN did not take the view that the succus is inert. He knew it was very largely used in asylums, and it would not be used, he thought, if it was not active. Perhaps they wanted to take a leaf out of the American pharmacist's book and fix the alkaloid in the preparation by means of a little acetic acid. As to the suggestion that the liquid extract should be the only Pharmacopœia preparation, that, he thought, was a matter which they should leave therapeutists to decide.

Mr. JOHN MOSS, referring to Mr. Groves's suggestion, questioned whether the alkaloid would have the same effect as conium itself. In the parallel case of quinine and cinchona, they knew that quinine alone had not the same effect as cinchona-bark itself. The paper he considered a perfect one.

Mr. R. H. PARKER said it appeared that the unripe fruit was the best, and he thought that when members of the Conference could bring forward such valuable work as was exhibited in the paper its existence was justified, and it was doing the sort of work that entitled it to support. It contained several valuable suggestions; a statement of how the most active preparation could be made, and also showed, to his thinking, the effect of pharmacists on the revision of the Pharmacopœia. (Hear, hear) It was clear that the fluid extract of the unripe fruit was what was wanted, and he thought it should be standardised.

Mr. KELLY remarked that while the authors had proved that the extract might be partly inert, he believed that the succus was active. Physicians, he thought, should listen to what Messrs. Fair and Wright had to say. But how they should carry the suggestions into practical effect remained to be decided. Perhaps it might be in a similar manner to what was the moral of the story of two members of Parliament who were walking somewhat unsteadily in Dublin. One of them became somewhat overcome, and the other, in a moment of sympathy, went to him and said, "I cannot pick you up, but I will lie down beside you." That was what medical men should do. (Laughter.)

Mr. PICKARD asked if there was no loss of alkaloid in drying the fruit.

Mr. HENRY COLLIER stated that succus conii was often prescribed in Guy's Hospital, and it did a great deal of good. It was one of the constituents, for example, of a cough-mixture, containing, also, bicarbonate of soda. His experience was that it was a good preparation. The pill was not much used, however.

Mr. E. T. BREWIS asked if Mr. Wright could state in what condition conium exists in the drug.

The PRESIDENT remarked that it was interesting to note that conium no longer grows wild around London. There had been such a demand for it at one time that the plant had been quite extirpated within a radius of twenty or thirty miles of the metropolis. On the question whether English or foreign fruit should be used, he said he noticed that the British Pharmacopœia only stated that the fruit should be gathered when fully developed and while green. Referring to Mr. Groves's suggestion regarding the use of conium, he said that the alkaloid met with in commerce is a very indefinite mixture, and he did not think it was equivalent to conium. What they had to do was to prove, in their position as pharmacists, what pharmaceutical preparations were active, and it was hardly advisable to push away those preparations for chemical compounds the nature of which was indefinite. The action of conium was peculiar. It was in some cases a valuable sedative, and he knew that the ointment, though a barbarous preparation, was attended with good results in use.

Mr. WRIGHT then replied, and stated that the President had somewhat anticipated him in regard to the value of the preparations of conium as compared with the alkaloid. He was disposed to agree with Mr. Groves that an alkaloidal salt would be advantageous, but it was not for them as pharmacists to dictate to medical practitioners. They had simply to place their views before the authorities. Replying to Mr. Cross's reference to aphides, he said they had not been too quick for him, and

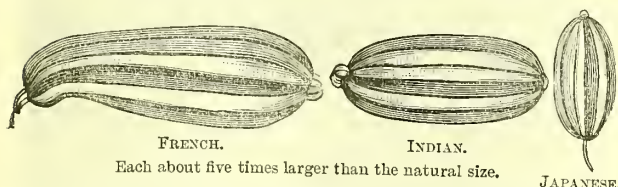
he called attention to three separate collections of fruit, from the same plant, upon which he reported. One week the fruit yielded 725 per cent. of alkaloid; the next 975; and, somewhat later, a little more than 1 per cent. As to Mr. Bird's question regarding the stability of conium preparations, he said that they were the most stable of any alkaloidal solutions that he knew. They might boil them, evaporate them, and treat them in many ways generally destructive of alkaloid without altering the percentage materially. The odour was not due to the alkaloid, but to some volatile principle, the nature of which he had no knowledge. The same thing occurred in drying the plant, and when that was done in the house it caused great disturbance to two parties therein—one the wife, the other the cat. (Laughter.) Mr. Wright also referred to United States pharmacists being ahead of us, as Mr. Martin had pointed out, in using only the fruits. The alkaloid, no doubt, was fixed by acetic acid, but he was not sure that this was the right thing to do. He agreed that it would be desirable to standardise, but he had not said anything of that in his paper, as he had preached so much about it that he was afraid to give them a sermon once again. Replying to Mr. Pickard, he again stated that there was no loss of alkaloid in drying the fruit. He was unable to say how the alkaloid was fixed in the plant. It no doubt existed as a salt, but whether in combination with conic or mallic he could not say.

12.10. The next paper read was on

JAPANESE FENNEL AND ITS OIL.

By John C. Umney.

During the past few years there has been a constant and increasing demand for fennel, and the fruit grown in Southern Europe, which at one time represented by far the greater part of that met with in trade in this country, is now being rapidly—indeed, has been almost wholly—displaced by East Indian fennel. The Japanese, having doubtless noticed the shipments that are constantly reaching the ports of London and Liverpool from Calcutta, have turned their attention to this drug, and have recently made what would appear to have been an experimental shipment to London. Of the three varieties of fennel-fruit alluded to, it is noticeable that although there is not a great difference between the fruits of Southern Europe and India, the former being usually larger and more curved, there is a marked difference (in appearance) between these fruits and the Japanese variety. This difference has misled some of those



who constantly handle fennel, for one of the leading brokers in London, at a recent public drug-auction, described in his catalogue as "aniseeds" the fennel which the author's firm purchased and upon which he had experimented. Although to a careless observer Japanese fennel might be mistaken for anise, still a closer examination shows that the fruits differ from anise in being more oblong and in not tapering to the apex. Each mericarp is traversed by five prominent ridges, and a microscopic examination of a transverse section of the mericarp shows at once that the vittæ are very large, either five or six number, bordered by brown tissue. In anise the vittæ are more numerous, twenty to thirty in each mericarp, and, except on the commissure, much smaller than in fennel.

No hairs, moreover, are present on the surface of the Japanese fennel-fruits such as are characteristic of anise. In odour there is a close resemblance between European and Japanese fennel, and the taste of the latter, at first sweet, is marked by a decided after-bitterness similar to other varieties.

So far no examination of the essential oil of Japanese fennel has been made, although Schimmel says that its "quality is not so good as that of the German oil." The author, therefore, submitted a quantity of the fruits to steam-distillation (care being taken to keep the water of the

condenser at a temperature of at least 25° C., to avoid any separation of anethol), and 2.7 per cent. of a pale-yellowish oil, closely resembling in odour ordinary oil of sweet fennel, was obtained. The specific gravity of the oil was .9754 at 15° C., and its optical rotation +15.5° in a tube of 100 m.m. The specific gravity of fennel oils varies according to the amounts of anethol, fenchone and terpenes contained in them. Oil distilled from French seeds is usually sp. gr. .975 to .980, although some continental samples fall below those figures owing to the abstraction of a portion of the anethol. The optical rotation—variation in which depends upon the same conditions as the specific gravity—is about normal. The oil solidifies at 7° C. when stirred, and becomes liquid again at 10° C.; these solidifying and melting points are somewhat higher than usually found, and indicate a high percentage of anethol. The following proportions were obtained by fractionation of 100 c.c. from a glycerine-bath:—

	Per cent.
Below 226° C.	26
Between 220-225° C.	32
" 225-230° C.	34
Residue	8

These figures are very similar to those obtained by fractional distillation of oils distilled from French and Indian fruit.

For the examination of the terpene constituents of the oil the first 25 c.c. were removed under reduced pressure from 200 c.c. of the oil, but by repeated fractionation of this portion only about 5 per cent. (of the original oil) could be obtained boiling below 180° C. at ordinary pressure, and this consisted of pinene and dipentene, no indication of phellandrene being obtained by the nitrite test. The portions boiling from 180° to 190° C. and 190° to 200° C. were mixed and refractionated, slightly over half their volume (about 13 per cent. of the original oil) distilling between 188° C. and 194° C.—i.e., about the boiling-point of fenchone (190° to 192° C.).

The amount of fenchone present was determined by reduction to its corresponding alcohol and estimation by the acetylation process, and was found to be equal to 10.2 per cent. calculated on the original oil.

Of the 175 c.c. left after removal of the 25 c.c. already referred to under reduced pressure, 128 c.c. distilled above 226° C. This fraction still possessed slight dextro-rotatory power, and had a sp. gr. of .983 at 25° C. It solidified at 19° C. when stirred, remelting at 20° to 21° C., and is evidently not quite pure anethol. The probability is that over 75 per cent. of anethol is present in the oil, in addition to fenchone and terpenes.

Consideration of these results indicates that the oil distilled from Japanese fennel differs but little from normal oils distilled from other varieties of fennel-fruit. The oil corresponds well with the requirements of the U.S.P.—in which fennel oil is official—which are: Sp. gr. not less than 960 at 15° C. Between 5° and 10° C., it usually solidifies to a crystalline mass, but occasionally it remains liquid at a considerably lower temperature.

DISCUSSION.

12.17. The PRESIDENT asked if it was anethol that was crystallised out.

Mr. F. H. LESCHER said that from the commercial point of view papers of this character were of great value, because the area and opportunities for the production of these seeds in the East was enormous, and if they found that the essential oils produced from the seeds was the same sort of oil as that which they obtained from the South of France and Europe, the information was bound to be of very great good to the trade. (Hear, hear, and applause.)

The PRESIDENT remarked here that the odours of the two oils from the Japanese and French seeds were scarcely distinguishable, they were so alike; and he felt that the thanks of the Conference were due to Mr. Umney for bringing forward the paper. What did the B.P. say about the source of the seed? That was a matter worth looking into, because their friends in the Antipodes did not think that any country should be mentioned if several produced the same article.

Mr. CONROY said in regard to the yield of the oil—2.7 per cent.—that it was somewhat low, as 3 to 4 per cent. was

generally obtained from the seeds hitherto in use; but, he added, the odour of the oils were somewhat similar. He asked Mr. Umney if he had tried the yield personally.

Mr. UMNEY, in reply, stated that the crystallisation referred to was one of anethol. The yield of essential oil was from a very small lot—viz., $\frac{1}{2}$ cwt of seed—and was, perhaps, not the fullest yield that might be obtained. Still, a lot of French distilled recently yielded 3.2 per cent of oil. Replying to Mr. MacEwan, he said that he had not yet determined the botanical region of the seeds, but that four of the eight plants growing, and Mr. E. M. Holmes had promised to try and find it out.

12.24. The next paper called for was on

RADIOGRAPHY.

By Leo Atkinson, Medallist, Royal Photographic Society.

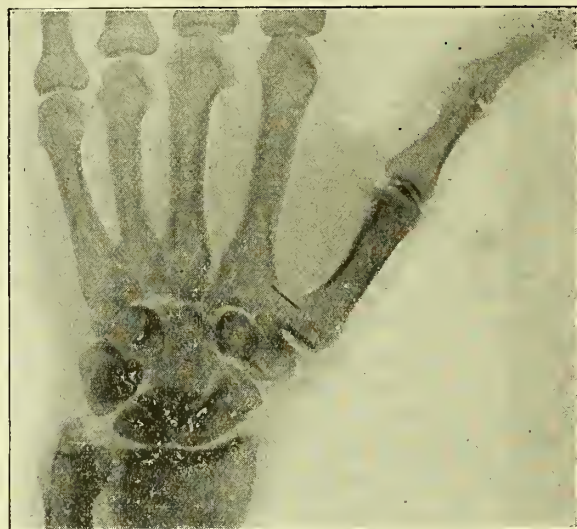
In this communication the author gave a brief sketch of the rise and uses of *x*-ray photography, stating at the outset that although *x* rays will always be associated with the name of Röntgen, the fact cannot be overlooked that the groundwork of the subject was prepared by Crookes in his classic research on radiant matter, while Hertz and Lennard have also contributed their share. A practical knowledge of radiography will be of advantage to pharmacists, for it is not a thing of ephemeral interest, and already its value for rapid, accurate, and permanent diagnosis in medicine and surgery has exceeded the most sanguine expectations. Continued experiment has proved that the salts of silver are just as sensitive to the *x* rays as to ordinary light. It was at first supposed that dense objects would give shadows without gradation; it is now found that, for example, in a leaf the most delicate venation is brought out into relief. The fact that substances differ in respect to permeability to the rays is no more astonishing than the diathermic properties of bodies. Rock-salt and alum are equally transparent; but the salt transmits only 95 per cent. of heat rays, and alum only 12 per cent. As with thermal rays it is impossible to predict the opacity of any body to *x* rays. The author claimed that the knowledge of chemistry and physics possessed by the pharmacist makes him specially qualified to undertake the practice of radiography, while his association with medical men enables him to give them assistance in radiographic diagnosis. He referred to some of the discoveries which have been made by means of the art, and stated that many sophistications of food and drugs can be detected by Röntgenography.

The most essential thing for the practice of the art is a well-made Ruhmkorff coil, and in regard to this he pointed out that it is not uncommon to find that coils advertised as of English make are found on investigation to be of indifferent French manufacture. Imposing-looking coils break down in a manner quite unaccountable to the uninitiated—cheap coils being wound from end to end, insulation is easily broken down.

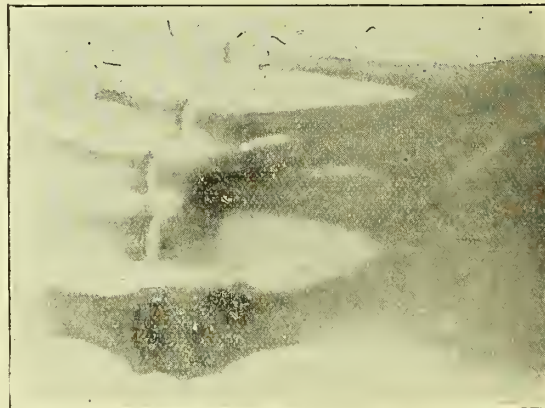
A well-constructed English coil is built up in a number of sections, 20 to 100 or more. Each completed section resembles a stout indiarubber band, and is separately tested during manufacture. The sections are finally connected and run on the primary, so that should any section get damaged the efficiency of the coil is simply reduced by its fractional equivalent of the total number. The damage can easily be repaired. Fair results can be obtained with small coils; but their applications are limited. The author then spoke of the *x*-ray tubes, and specially commended those made by Corsor. Although much ingenuity and skill has been displayed in the manufacture of "Crookes' tubes," the production of a tube giving a maximum of "*x* rays" is still within certain limits a matter of chance. The extent of the vacuum is not the dominant factor; tubes blown from the same glass, of equal size, having electrodes of equal weight, and sealed at a determined vacuum, give very discordant results. The most reasonable theory is that this is due to a variable quantity of occluded gas in the electrodes which makers so far cannot expel. The fact was that all tubes after prolonged usage gradually become more feeble, and a few weeks' rest partially restored them, rather tends to confirm this theory. Some of these phenomena will well repay investigation, said the author. As to the source of the electromotive force, he said that bichromate cells are more convenient than the Groves or Bunsen battery, but not so constant.

The author spoke next of the cryptoscope or fluorescent screen. The best is made by thickly coating glass with platinumocyanide of barium or potash, and for the less dense parts of the body calcium tungstate and the double sulphate of uranium and potash answer very well. Still, a cheap stable fluorescent salt is a real want. The paper concluded by an advocacy of closer relations between pharmacists and physicians in such matters as this.

Mr. Atkinson exhibited some specimens, from which the following have been reproduced.



(1) A hand with a needle embedded in bone and tissue, extracted at Miller Hospital by Dr. Moore; radiographed by Leo J. Atkinson.



(2) The foot of a man 21 stone weight, who fell down a flight of stone steps twelve months ago, was treated for contusion and severe sprain. He had been latterly in acute pain and unable to walk. The radiograph shows dislocation of some of the metatarsal bones and a fracture badly joined. The case is now under Mr. Victor Horsley, who states that without radiography any correct diagnosis of these injuries would have been impossible.

DISCUSSION.

12.36. The PRESIDENT said that on the table there were some examples of photographs taken by the *x* rays.

Mr. N. H. MARTIN said he thought they were all greatly indebted to Mr. Leo Atkinson for having brought this subject before them. It showed how ready the pharmacist was, and, he thought, how capable he was, to be the handmaid of medicine, which was what they, as pharmacists and as members of that Conference, had always maintained that he should be. Röntgen photography was of extreme interest, and at present almost the only practical application of it was in connection with surgery. It was of the greatest value in the discovery of foreign bodies, such as bullets and needles, and almost of

greater value in showing such injuries as Mr. Leo Atkinson had shown in the radiographs. Dislocations and badly-repaired dislocations were correctly shown. Many people thought it was only necessary to get a set of apparatus in order to take a radiograph. That idea was responsible for a great deal of disappointment. Unless men could spend a large amount of time over it there was no doubt that their radiography would be unsuccessful. He (the speaker) was fortunate enough to have amongst his assistants an enthusiast for it, and he had obtained very good results. They now got a radiograph of the hand in two seconds. He was glad that Mr. Atkinson had done justice to Professor Crookes in this matter. His (the speaker's) first connection with it was brought about by the fact that when the telegram appeared in the *Times* he had an inquiry for the tubes, and he happened to have in stock a couple of tubes of Crookes's which had been in stock two years. They were at once tested, and acted very well indeed. They got new tubes from the same maker, and they proved to be of no use at all. Whether the long time that they had been in stock had increased the vacuum he did not know. They made the tubes now, and every tube was tested electrically and sealed off when it had produced its maximum effect. But in actual use the vacuum went up and down in a most remarkable manner. The vacuum would constantly increase, and no spark at all would pass across the tube. Yet at other times it was found that the vacuum was very low, and the tubes had to be warmed before one could get them to act. The tubes would last a long time. He agreed with the concluding remarks that the pharmacist must be ready in the interest of physical and natural science to assist the physician in every way that he required. Their knowledge must embrace every branch of physical and natural science, as well as of drugs, if they were to assist the medical man to the utmost that he would require assistance in the future.

The PRESIDENT said Sir Gabriel Stokes's theory was that the rays moved in straight lines.

Mr. ATKINSON: Rather in very short waves.

Dr. SYMES said he thought it was a point in the preparation of the tubes now used for Röntgen photographs that the exact amount of exhaustion necessary for getting the best results should be determined. He had the pleasure a few months ago of going into Professor Röntgen's laboratory, and he found that in his early experiments he had been working with roughly made tubes, and did not have an opportunity of ascertaining whether he had determined some particular point of exhaustion for getting the best results. That was a point to which attention should be directed.

Mr. NAYLOR: Is not also the shape to be taken into consideration?

Mr. ATKINSON said he should just like to say that although they might seal the tube off at a certain stage of exhaustion, it had been found by experience that a great many tubes were not effective when they got into use. He did not think it was possible to determine the exact vacuum. The efficiency of the tubes seems to depend to a large extent upon one factor that had not been properly estimated, and that was the quantity of occluded gas in the electrodes, and the makers really do not seem able to deal with that matter satisfactorily at all at present.

Mr. MARTIN: The quantity of occluded gas goes up and down.

Mr. ATKINSON: I believe that such is the case.

The PRESIDENT said their thanks were due to Mr. Atkinson for his interesting paper. The subject had incited a good deal of attention during the last twelve months. It was a complete surprise when the telegram came announcing the possibility of seeing through a brick wall, so to speak. The results had exceeded their expectation, and still there were points that required scientific elucidation.

Following perilously near to the hour of adjournment, Mr. FARR read the subjoined paper:—

THE STRENGTH OF SOME OF THE OFFICIAL SUCCI.

By E. H. Farr and R. Wright, Fellows of the Chemical Society.

The succi, or vegetable juices, were introduced into medicine by the late Mr. Peter Squire in the year 1835, but were

first brought before the notice of pharmacists by him in 1841 in a note read before an evening meeting of the Pharmaceutical Society. Owing, probably, to a suspicion of their variability in strength, or possibly to the fact that they do not present any marked advantages over the tinctures, they have never come into extensive use in medicine, with the one exception of succus taraxaci. The only published record of any attempt being made to determine their value is in a note by Arthur Smith (*P.J.*, 3, xvii., 835). He examined three samples of each of the official juices and also of the expressed juice of digitalis. The average percentages of alkaloids recorded by Smith were as follows:—Belladonna, .030; hyoscyamus, .031; conium, .156; scoparius, .086; digitalis (glucoside), .073. The comparative value of the samples of succus taraxaci was determined by comparing the difference in the degree of bitterness of the samples. The authors' attention was drawn to the subject some time ago, when one of them was called upon to dispense a prescription containing unguentum conii. The case being a very serious one, it was urgently necessary that a physiologically active preparation should be supplied. An examination of the succus conii in stock showed that it was practically inert, and it was found necessary in the end to employ a fluid extract of known strength for the production of the ointment. In view of this experience, it was thought desirable to test the activity of those of the official succi which contained active principles capable of accurate determination—i.e., those containing alkaloids—viz., belladonna, conium, hyoscyamus, and scoparius. Five samples (in two cases six) were obtained from the usual sources of supply, and the alkaloids determined by the following general process:—

Twenty-five cubic centimetres (in the case of hyoscyamus 50 c.c.) of the sample was placed in a porcelain dish with 20 drops of dilute sulphuric acid, and the mixture evaporated over a water-bath to about 5 c.c. Twenty-five cubic centimetres of 90 per-cent. alcohol was added, and the whole well stirred and allowed to stand for two hours. The mixture was then filtered through a dry filter-paper. The residue in the dish and on the filter was treated with about 5 c.c. of distilled water, and the treatment with alcohol repeated. The mixed filtrates were then placed in a porcelain dish, 35 c.c. of distilled water added, and the mixture evaporated to about 15 c.c. It was then filtered through a plug of cotton-wool into a stoppered glass separator, the dish and filter being washed with distilled water and the washings added to the contents of the separator. A slight excess of alkali was then added, and the whole shaken up with two successive 10 c.c. of chloroform, which, after separation, were drawn off in turn and mixed. From the mixed chloroformic solutions the alkaloids were extracted by agitation with three successive 10 c.c. of 1-per-cent. sulphuric acid. The acid solutions were separated and bulked, and the alkaloids recovered from the mixed solutions by repeating the treatment with alkali and shaking with chloroform as before. Finally, the chloroformic solution was evaporated over a water-bath, and the residue dried until the weight was constant. The alkaloids of conium and scoparius were weighed as hydrochlorates, the chloroformic solution of the alkaloids being run into 10 c.c. of hydrochloric chloroform (chloroform saturated with dry hydrochloric acid), the chloroform allowed to evaporate in a current of warm air, and the residue dried in a water-oven at about 90° C. The results of the estimations are shown in the table, and, for the purpose of comparison, the average is placed side by side with the average result of the estimation of twelve samples of the corresponding tinctures, reported upon at the Bourne-mouth Conference last year. Those results indicate that the average strength of succus belladonnae is almost twice as great as that of the tincture, while that of succus conii and succus hyoscyami is in each case much below the average of the corresponding tincture. Although, the succi are shown to be exceedingly variable in strength, they do not exhibit any greater variation than do the bulk of the tinctures as at present prepared. Is it too much to hope that a time will come when all remedies liable to such considerable variations will be discarded, and when those to whom is entrusted the responsibility of producing the national Pharmacopœia will be in a position to follow such methods and to devise such processes as may serve to afford

to those who are "engaged in the preparation of medicines one uniform standard and guide whereby the nature and composition of the substances used in medicine may be ascertained and determined"?

Table showing Percentage of Alkaloids in the official Succⁱ examined.

Name	1	2	3	4	5	6	Average	Average Commercial Tincture
Belladonna ..	.032	.025	.010	.034	.050	—	.030	.018
Conium ..	.012	.015	.032	.012	.062	.033	.027	.043
Hyoscyamus ..	.005	.005	.006	.004	.006	—	.005	.010
Scoparius ..	.112	.212	.114	.172	.184	.178	.162	—

DISCUSSION.

The PRESIDENT briefly summarised the conclusions of the authors.

Mr. RANSOM stated that the paper was a very valuable one. It was of great importance that the official succⁱ should be standardised, but he pointed out they were liable to as much variation as other galenical preparations—*e.g.*, in wet seasons the juice was much more wet than in dry years.

Mr. J. C. UMNEY mentioned that recently, when he was making an unofficial juice—*viz.*, succus aconiti—he observed that the juice contained practically no crystallisable alkaloid, and on examining the marc he found that it contained the aconitine. That was a point which he thought should not be lost sight of, and should in some way be remedied.

Mr. HARDWICK said that some variation in the characteristics of the juices must be anticipated. The authors had already pointed out that sunlight had a great influence upon the quantity of alkaloid contained in the plant.

Mr. CONROY did not feel inclined to condemn the whole of the succⁱ, for in his experience some of them were very valuable preparations, and it should be noted that tinctures varied as much as succⁱ. He was surprised to hear how

strongly alcoholic the menstruum was that Messrs. Farr and Wright recommended for making fluid extract of conium, and he asked if it were not possible to use a weaker one.

The PRESIDENT, referring to the remarks regarding standardisation, thought that pharmacists did not know enough of the active principles of conium to carry standardisation as far as Farr and Wright would like. ("Hear, hear," and applause.) That was the difficulty which met the Pharmacopœia Committee, and he held out no hope that standardisation would be adopted until they had that full knowledge which was necessary.

Mr. UMNEY having replied to Mr. Martin that the aconite-juice did not contain crystallised aconitine, and that he did not refer to other alkaloid,

Mr. WRIGHT explained that it was his desire to bring before the meeting the results of some physiological experiments about which he had been in communication with Professor Cash, of Aberdeen; but the professor had not had time to make the experiments. He promised, however, that he would look into the matter in the autumn, and Mr. Wright hoped that at some future time he would be able to say whether a preparation of conium containing a definite amount of alkaloid gave the same effect as a solution of the same quantity of coniine.

Mr. FARR, referring to Mr. Umney's remarks regarding aconite-juice, stated that the best samples of the juice upon which he and Mr. Wright had now reported did not represent the full quantity of active principle in the plants. This was especially the case in regard to succus belladonnæ. As to conium, a preparation of the flowering tops just before the fruiting stage would no doubt be best, but it was not so good as a preparation of the unripe fruit. In their experience the strong spirit gave a better preparation than a weak one, and it kept better. Tincture of conium went turbid on keeping, but a drop or two of acetic acid kept it bright. He also referred to the volatile matter in conium, and especially as to its therapeutic activity, but at present he had not sufficient data to make any specific statement about the matter.

The Conference then adjourned at seven minutes past 1 for luncheon.

SECOND SESSION, TUESDAY AFTERNOON.

THE proceedings were resumed at twenty minutes to 3, at which time only six members were present.

The PRESIDENT said that while the members were assembling there were one or two short papers which might be read. The writers were not present, but Mr. Naylor had consented to read the papers.

NOTE ON CONCENTRATED HYDROBROMIC ACID.

By Charles T. Tyrer, F.C.S.

Occasionally complaints have been made that hydrobromic acid of specific gravity 1.275 and upwards has an odour similar to that of sulphurous acid. Careful examination of the acid for sulphur compounds has been made, and none found. A sample of the specific gravity of 1.640 was redistilled until white. It tested free from sulphurous acid and bromine. This remarkably resembled sulphurous acid in odour, but was of a more irritating nature. Acids above specific gravity 1.150 are very liable to coloration and above 1.300 are almost certain to be coloured in a few days. Highly-coloured 1.500, however, will often become water-white. Any attempt at filtration of 1.200 and above will increase coloration and the filtrate will not dilute to a colourless solution, even though the very finest Swedish paper be used as the filtering-medium. Hydrobromic acid of 1.250 and upwards attacks glass vessels very rapidly, although the silica when once dissolved is not thrown out readily on dilution to the B.P. strength, but only shows its presence on neutralisation. In view of these facts, acid of sp. gr. 1.250 seems the highest concentration to which really reliable and pure acid can be raised—the acids of higher gravity, although water-white when first sent out, rapidly changing colour and containing silica.

DISCUSSION.

The PRESIDENT said the subject of the paper was of considerable importance, and he knew, from practical experience,

that a more concentrated preparation than the 10-per-cent. acid of the British Pharmacopœia was required.

Mr. J. C. UMNEY asked if the 1.250 acid was equal to 30 per cent. of hydrobromic acid.

The PRESIDENT replied that it was slightly below.

Mr. NAYLOR said he was not really aware of the fact that hydrobromic acid, sp. gr. 1.250, did attack glass. He thought it would have been rather an advantage if some reference had been made to the particular kind of glass, as it might have helped them.

The PRESIDENT said it was white glass. He repeated that he thought it would be very convenient to have the acid more concentrated than the 10 per cent. The case of phosphoric acid was somewhat on parallel lines. The phosphoric acid group was well represented in the British Pharmacopœia, and included a preparation of sp. gr. 1.5. Probably something of the kind might be the case with hydrobromic acid, but if it were found that it was not sufficiently stable it would be a matter for investigation.

NOTE ON HYPOPHOSPHOROUS ACID.

By Charles T. Tyrer, F.C.S.

Objection frequently has been raised to the separating out of more or less flocculent matter from this acid as sold of the specific gravity 1.136. In the *Year-book of Pharmacy* for 1888, page 21, there is a note by Mr. George Lunan, in which he offers a ready mode of preparing the acid on a small scale. Probably the suggestion of using the hypophosphite of calcium instead of the hypophosphite of barium, as recommended by Squire, was due to the higher price of barium hypophosphite, or—on the assumption that Mr. Lunan had tried to prepare the barium salt—the difficulty of preparing the one compared with the other, which is considerable. Apart from this consideration, there also might have been that of the percentage of hypophosphorous

acid in favour of the lime salt. In the 1880 edition of Cooley's "Cyclopædia," vol. ii., page 1,273, the same method as Mr. Lunan's for the preparation of the acid is given. The calcium method is unsatisfactory, since if, as in some cases, sulphuric acid is used as a precipitant, the calcium sulphate partly dissolves, and separation is inevitable. When, moreover, oxalic acid is used, the hypophosphorous acid dissolves some oxalate, which gradually separates out, and, even after concentration and allowing to stand, there will be separation on further standing. Submission to a freezing temperature does not seem to have any appreciable effect in separating out the dissolved oxalate. In making from the calcium salt, too, there is considerable liability to formation of phosphate during the evaporation, which, still more than the oxalate, dissolves in the hypophosphorous acid, and separates out fractionally, as it were, after a time.

The "National Formulary" and U.S.P. give a method consisting of the decomposition of hypophosphite of potassium by tartaric acid, and the separation of the potassium tartrate by alcohol. This process appeared hopeful at first in the matter of subsequent separation, but considerable experience has proved the slight solubility of the potassium tartrate in dilute spirit. On the assumption that pure spirit was used, and not methylated (which would be illegal), the method is economical, because both the spirit and the potassium bitartrate could be recovered and utilised; but the solubility of the bitartrate gives erroneous contents for specific gravity, which should be 1.143 to give 30 per cent. required by the B.P.C. In this case also the bitartrate is not separated completely by refrigeration. The separation takes place, not to the same extent or degree as by the calcium method, but sufficiently, at any rate, to make the acid prepared by this method unsuited for some purposes for which hypophosphorous acid is required, and to leave the objection of separation.

The preparation from barium hypophosphite is undoubtedly the best, and if the decomposition is carefully

confirm the statement made in the paper that the trouble in the matter is the crystallisation of the oxalate. He also agreed that it is almost impossible to get the acid of 30-per-cent. strength.

The PRESIDENT said the point he wished to emphasise was that it had been found that the hypophosphorous acid of the B.P.C. Formulary had answered very well.

Mr. CROSS said he had found no difficulty with decomposition. He had found the B.P.C. formula for syrup work extremely well, and it was the best syrup he had been able to make by any process.

Mr. BREWIS said it was very necessary to get the acid as pure as possible. A good deal of commercial hypophosphorous acid was not pure.

Mr. CROSS said the difficulty he had experienced was contamination with sulphates.

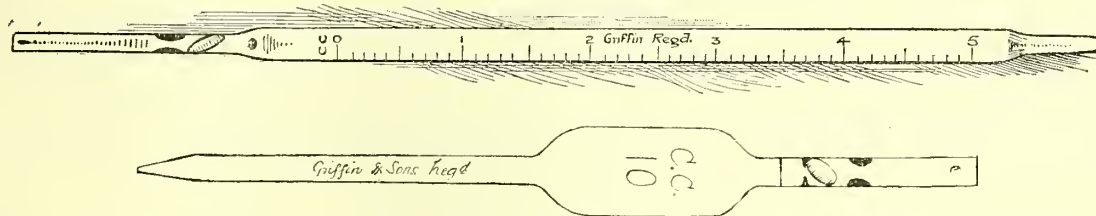
The PRESIDENT moved a vote of thanks to Mr. Tyrer for his papers, and this was cordially agreed to.

3.0. Mr. NAYLOR then read the following paper:—

A SAFETY PIPETTE.

By E. W. Lucas, F.C.S.

For the accurate measurement of small quantities of liquids pipettes have many advantages over ordinary glass graduates. The chief drawback to their use, however, lies in the fact that if a noxious or corrosive liquid is incautiously sucked up into the mouth disastrous results may ensue. The author, in order to overcome this difficulty, has devised an instrument, which has been made for him by Messrs. Griffin & Sons, consisting of an ordinary pipette with a somewhat elongated mouthpiece with two constrictions about an inch apart. The upper constriction is ground smooth inside, the lower one is imperfect, while between the two is a loosely-working glass plug, as shown in the drawings. The action is as follows:—The pipette is placed in the liquid, which is sucked up by the mouth in the usual way. As



effected by sulphuric acid in dilute solution, fairly good results follow; but hypophosphorous acid appears to be capable of dissolving a small quantity of sulphate of barium as well as silica. It may be remarked that the action of concentrated hypophosphorous acid upon glass and porcelain is far greater than that of highly concentrated phosphoric acid, and the separation which sometimes occurs on neutralisation is due to silica. The acid prepared from the barium hypophosphite does not deposit on long standing, and when of a specific gravity 1.137 contains 30 per cent. of real hypophosphorous acid, which is not the case with the acid prepared from potassium or calcium hypophosphite.

The author mentioned, incidentally, that attempts were made to mix hypophosphorous acid made from the calcium salt with acid made according to the "National Formulary," in various proportions, in the belief that calcium tartrate would deposit, but the experiments did not result favourably.

DISCUSSION.

The PRESIDENT expressed regret that neither Mr. Tyrer nor his father was present, as they, being manufacturers, might have something to say. The Secretary and himself had devised a formula for the acid which was given in the B.P.C. Formulary, and there might be a small trace of barium hypophosphite in solution, but the formula answered very well in his experience. He did not know what other members might have found, but he himself had not found anyone who had met with difficulty in that mode of production.

Mr. NAYLOR said he could speak as to the unsatisfactory character of the oxalic-acid method, and he could quite

soon as the liquid reaches the plug it is carried upwards and forced into the second constriction, into which it fits accurately. There are no delicate parts to get out of order, and as the pipette consists entirely of glass it can be safely used for measuring corrosive liquids of all kinds.

The CHAIRMAN said the safety pipette merely required illustration. It would be illustrated in the journals, so that members would be able to see the principle of it.

3.5. Mr. R. D. LITTLEFIELD was next called upon to read a paper on

CASCARILLIN.

By W. A. H. Naylor, F.I.C., and R. D. Littlefield.

In 1845 M. Duval separated from cascarilla-bark a principle which after purification from alcohol was white, crystalline, inodorous, and bitter to the taste. This principle he designated "cascarillin." The following stages represent the main features of the process by which it was extracted. An aqueous liquor obtained by percolation of the bark in the cold was precipitated by solution of acetate of lead, and filtered. The filtrate, after removal of the excess of lead by sulphuretted hydrogen, was filtered and evaporated to two-thirds, and shaken up with animal charcoal. It was again filtered, and evaporated to a thin, syrupy consistence, when, on cooling, a brown, apparently amorphous, resinous substance separated. This residue was purified by reducing it to powder, and treating it first and sparingly with cold spirit (s.g. .866) and then with boiling spirit (s.g. .832). By resolution in spirit of this latter strength, and decolorisation by charcoal and spontaneous evaporation, cascarillin presented the form of minute, colourless, prismatic needles.

In 1873 C. and E. Mylius isolated cascarillin by a process less tedious than the foregoing. They found that an aqueous extract of cascarilla, after sufficient and careful concentration, deposited a white globular substance, similar in appearance to inulin. By recrystallising this substance repeatedly from alcohol, it was obtained in the form of white, microscopically small needles.

In 1882 Dr. P. E. Alessandri published a method for the extraction of the bitter principle of cascarilla "founded on the use of oxalic acid." The bark, in coarse powder, was macerated in a 2 or 3 per cent. solution of the acid for twelve hours, with frequent agitation. The temperature of the mixture was then raised to 60° C., allowed to cool, after which the liquid was filtered and the marc well pressed. The filtrate was saturated with ammonia and evaporated to two-thirds its bulk, allowed to cool, and filtered if necessary. The bright liquid was shaken up with pure ether, and the ethereal layer was distilled so as to remove the greater part of the ether. The remaining ether was allowed to evaporate spontaneously, the result being almost pure white "cascarilline."

A comparison of the properties of the respective products yielded by these processes, which we have now briefly outlined, challenge the common identity claimed for them. The points of difference in their alleged behaviour towards reagents between Duval's cascarillin and Alessandri's cascarilline are striking and vital. To facilitate comparison, the main characteristics as determined by these two workers are placed in parallel columns:—

No.	Duval's Cascarillin	Alessandri's Cascarilline
1	White and crystalline	White, crystallised, almost pure
2	Sparingly soluble in water, neutral to litmus	Soluble in warm water
3	Soluble in alcohol and ether	Very soluble in alcohol and ether, slightly soluble in benzol, chloroform, and carbon disulphide
4	Concentrated sulphuric acid dissolves it, and instantly becomes of a deep-red colour approaching to purple. Precipitated by the addition of a little water, the liquid assumes a grass-green colour.	Concentrated sulphuric acid colours it cherry-red, which after a quarter of an hour turns to a greenish violet, and afterwards to pure green
5	Hydrochloric acid dissolves it, and assumes a violet tint, which changes to blue on the addition of a little water, passing into green if much water be added	Hydrochloric acid dissolves it, forming a rose-coloured solution, which gradually changes to purplish red, violet, green, and sky-blue, but without any addition of water
6	Concentrated nitric acid dissolves it. The solution, which is yellow, is precipitated by ammonia	Not decomposed by nitric acid
7	Heated with potash the vapour does not turn red litmus blue. It contains no nitrogen	Heated with potash it gives off ammonia, and therefore contains nitrogen
8	Does not combine with bases or acids	Forms crystallisable compounds with some of the acids. The acetate is at first pasty, but it afterwards becomes crystalline
9	—	The neutral hydrochloric solution is precipitated by— (a) Tannic acid in greyish-red flocks, the supernatant liquid being violet by reflected light (b) With sodic phosphomolybdate it gives a yellowish precipitate (c) Tincture of iodine turns it turbid
10	—	Heated strongly it gives off an aromatic odour and melts
11	—	Heated with potash it gives off ammonia

C. and E. Mylius state that the properties of the cascarillin isolated by them were found to be identical with those of Duval's except that they did not obtain the cherry-coloured solution with hydrochloric acid.

It seems incredible that any chemist should have con-

cluded, from a comparison of the characters of the respective products, that the two substances were identical. And yet that is the conclusion at which Alessandri arrived. "I maintain," he says, "that the cascarilline which I have obtained is identical with that of Caventou and Duval. The only discrepancy is in regard to its solubility in water." Messrs. Naylor and Littlefield felt that if the facts were correct the inference deduced from them was erroneous, and conversely, if the inference was right, the facts as a whole were untrustworthy. As a warranty for their assumption, they noted especially the statements made by Duval that his cascarillin contains no nitrogen, and that it is indifferent to bases or acids. On the other hand, Alessandri affirms just the opposite, and claims that a solution of his principle is precipitated by the principal reagents which affect alkaloidal substances. Moreover, throughout his paper he speaks of "cascarilline" as an alkaloid.

The question which the authors set themselves to answer was twofold—Is Alessandri's principle chiefly cascarillin or is it mainly a nitrogenous principle—that is to say, a base contaminated with sufficient cascarillin to give the colour reactions? And how far does cascarillin, isolated by either Alessandri's or Duval's method and purified, correspond in composition with the formula assigned to it by C. and E. Mylius? They prepared a quantity of cascarillin both by Alessandri's and Duval's processes respectively. The former was adopted without any modification; in working the latter evaporation was in part conducted *in vacuo*.

Duval's Principle—After three crystallisations from alcohol it was fairly white, but it left a perceptible residue after ignition. At this stage it was reduced to fine powder and treated by frequent agitation with chloroform. The undissolved portion was collected, dried, repeatedly crystallised from alcohol, and finally from ether, until when dried at 110° C. it had a sharp and constant melting-point. When it fulfilled these conditions it melted at 203.5° C.

Alessandri's Principle—As obtained it was of a greyish colour with just a suspicion of yellow. It melted at 182° to 185° C. When heated with soda-lime it evolved ammonia. A solution of it in water, acidified with sulphuric or hydrochloric acid, gave precipitates with solution of iodine and potassium iodide, Thénard's reagent, phosphomolybdic acid, and iodide of cadmium and potassium. It was dried over a water-bath and treated with chloroform. The undissolved portion was shaken up with three times its bulk of weak spirit (sp. gr. 868). After collection and drying it was recrystallised from alcohol, until when dried at 110° C. it had a constant and uniform melting-point. Its melting-point proved to be 203.5° C. This high melting-point—the highest that could be obtained—was only reached after six successive crystallisations from alcohol, which involved a loss on the original principle of nearly 50 per cent.

The pure cascarillin amounted to 2½ parts per 1,000 parts of bark.

The respective products separated by the two processes when purified as described were identical as indicated by a common melting-point, and their like behaviour towards reagents. They corresponded to the characters and tests given by Duval, and negatived those of Alessandri in respect of reactions that depend upon the presence of a nitrogenous and alkaloidal substance. The authors could not endorse the high opinion of the value of the oxalic acid process as expressed by its author when he says:—"It seems to me that such a process if used on a large scale, would give good results, first because the cascarilline obtained is almost pure without any long and laborious process of purification being resorted to, and secondly because the alkaloid may be obtained in sufficiently large quantities." But the authors find that Alessandri's process yields a mixed product from which pure cascarillin is obtained after much labour and considerable waste of material. It should, however, be stated that the same principle as obtained before purification with chloroform and alcohol is extracted with ease and speed greatly in excess of the lengthy and oft-repeated operations demanded by Duval's process.

Composition of Cascarillin.—C. and E. Mylius assigned to the cascarillin which they isolated and purified the formula $C_{12}H_{18}O_4$. The melting-point was 205° C. On burning the substance in an oxygen which melted at

203.5° C., the authors obtained the following numbers, which agree with the formula $C_{16}H_{21}O_5$:—

Calculated	Found			
	1	2	3	4
$C_{16} = 64.87$	64.9	64.9	64.7	64.9
$H_{21} = 8.11$	8.5	—	8.3	8.4
O_5 by difference	—	—	—	—

Calculated for $C_{16}H_{21}O_5$, the numbers are—

Carbon, 63.71. Hydrogen, 7.97.

It will be observed that the figures show about 1 per cent. more carbon than those of Mylius. The authors believe that if cascarillin could have been induced to melt at a higher temperature, it would have yielded a smaller percentage of carbon, for when it melted only at 198.5° C. it gave on combustion a percentage of carbon rather lower than that represented by Mylius's formula.

They added the interesting observation that when heated with zinc-dust cascarillin gave a distillate allied to anthracene.

DISCUSSION.

The PRESIDENT said that cascarilla was undoubtedly a valuable medicine, but his experience was that the commercial supply was not satisfactory. Probably it was sea-damaged, for it was somewhat damp. He reminded the meeting that some practitioners of the old school were very fond of the drug cascarilla, prescribing it with acids as a tonic, especially in cases of recovery from bronchitis.

Mr. J. C. UMNEY asked the authors if they could say what was the relative proportions of cascarillin in the bark and the wood. In a recent shipment which he had examined he had noticed an exceptionally large proportion of wood, and on testing it he could not find any cascarilla in it. He also asked if cascarillin was the active principle. Was it not generally supposed that the efficacy of cascarilla was due to an essential oil.

Mr. JOHN MOSS said that the paper showed good work. Previously they had only known generally what the constituents of the drug were; but now they were working along definite lines, for good work had not been done on it until now.

Mr. NAYLOR, replying, said that he and Mr. Littlefield did not attempt to separate bark and wood. They only used the finest possible specimen of the bark to work on. He could not say what the active principle was, nor would he like it to be thought that cascarillin had not been separated in the pure state before this, for it had been. What they said was that they had separated it in the purest possible state, and they were prepared to stand by their results. (Hear, hear.) They had devoted weeks, nay months, to the subject, and had showed completely, he thought, how careful the work by the Myliuses had been. There were only small differences between their results and theirs. Alessandri's method had been put forward as a commercial one, and their paper showed how wholly untrustworthy it was.

325. The next paper was read by its author—viz.,

BELLADONNA-ROOT POWDER; SEPARATED SIFTINGS COMPARED.

By R. H. Parker, F.C.S.

In separating a powdered root into portions of more or less definite degrees of fineness by means of sieves it probably but rarely happens that the separated portions are of equal potency. The active principle may reside in the cortical portion, as in ipecacuanha and senega, and if at the same time the interior be of a tough, ligneous character, the finer powder will be relatively stronger. Even when the activity is equally distributed, if the root be of starchy character, it is reasonable to assume that the bulk of this constituent will appear in the finer siftings, which will to that extent become relatively weaker. For percolation it is often desirable to have the drug of a definite degree of fineness, and as this is only attainable by sifting, it is obviously important to find out to what extent the potency

may have been modified, unless the final product is to be standardised. In order to decide this question in reference to belladonna-root, a sample of this drug was lightly ground and separated into three portions—"fine," "medium," and "coarse"—by means of sieves of 60, 40, and 20 meshes to the inch; 38 per cent. of the bulk passed through the 60 sieve, 22 per cent. through the 40 sieve, and 40 per cent. through the 20 sieve. These three portions were separately examined under parallel conditions for moisture, alcoholic extractive, and alkaloid. For moisture 1 gramme was dried at 100° C. until it ceased to lose weight. For alcoholic extractive 100 grammes, with 400 c.c. methylated spirit, agitated frequently during four days, the tincture filtered rapidly; 50 c.c. of tincture evaporated and dried at 100° C. till of constant weight. For alkaloid the alcoholic extractive from 50 c.c. of tincture warmed with 10 c.c. of acidulated water, estimated by Dunstan and Ransom's process (*Y.B.P.*, 1895, page 188), the separated alkaloid weighed, then dissolved in 10 c.c. vigintinormal hydrochloric acid and titrated with centinormal sodium hydroxide. The following results were obtained :—

	Fine powder (38 per cent. of bulk)	Medium powder (22 per cent. of bulk)	Coarse powder (40 per cent. of bulk)
Moisture .. per cent.	7.8	7.7	7.9
Alcoholic extractive ..	6.04	7.23	7.55
Alkaloid (by weight) ..	0.1976	0.2600	0.2616
Alkaloid (by titration) ..	0.1984	0.2592	0.2632
Sp. gr. of tincture	0.8273	0.8282	0.8286
Colour of tincture	Dark	Pale	Paler

It will be seen from these results that the finer powder gives a darker-coloured alcoholic tincture, but contains less alkaloid; and that the removal of the finer portion of belladonna-root powder to the extent of 40 per cent. makes the remainder of about 30 per cent. increased alkaloidal potency.

The author added that the question was a much larger one than appeared from the communication. He had often thought how pharmacists should act in regard to certain drugs—belladonna was an example; digitalis was another. When they tried to get a drug through a specified sieve certain parts exceedingly difficult to powder would not go through. He had mentioned the matter to the Honorary Secretary, who, with his business like acumen, had suggested that he should look into the matter definitely and bring it before the Conference, as he had now done.

DISCUSSION.

The PRESIDENT said that one could understand that the coarser the powder the more effective in some cases would be the exhaustion. The subject was one well worthy the consideration of the Conference.

Mr. J. C. UMNEY stated that in grinding large quantities of belladonna-root, say a ton at a time, the whole of it was bulked together after the grinding. This was absolutely necessary in the case of nearly all drugs—for example, capsicum, where they could not get a powder of the requisite colour without this bulking. He had already pointed out that in percolating belladonna with spirit, unless the percolation were carried out uniformly, the extract resulting from the percolates would separate into two layers, one containing between 1 and 2 per cent., and the other 7 per cent., of alkaloids, and he was convinced that the irritation often complained of in the use of belladonna-plaster was really due to this separation and consequent use of the stronger part (Hear, hear.)

Mr. NAYLOR said the question brought forward by Mr. Parker was really a B.P. one and of great importance. When the Pharmacopœia said that they were to take a drug in No. 40 powder, that meant that it was to be a powder of 40 degrees only. (Hear, hear.) It was impossible, he pointed out, to grind without gruffs, &c., and if they were to have absolute uniformity—i.e., that the ground drug should be the whole of the crude drug taken—they would have to go back to the old plan of simple contusion, without specification of what number of sieve the thing should go through. (Applause.)

Mr. MARTIN pointed out that when a No. 20 or a No. 40 powder was wanted the quantity of gruffs formed was very

small, and all that the pharmacist had to do was to put it along with the stuff that he passed through the sieve. The object of the definition was to have a certain degree of comminution carried out, and he thought that the course which he suggested fulfilled the spirit of the direction.

¶The PRESIDENT asked what would be done in the case of such a thing as chiretta, but his remarks were in the nature of conversation with Mr. Martin, and did not reach the reporters' table.

Mr. ATKINS said that Mr. Naylor's point was one of considerable practical importance. (Applause.) The difficulty did not lie with such large quantities as Mr. Umney referred to, but with the small quantities that the retail pharmacist operated upon. The Pharmacopœia said that they should take a powder of a certain fineness, and in practice they found that they could not get a certain proportion of the drug reduced to that degree. Well, what had to be settled was—how should the pharmacist act in that case?

Mr. BIRD explained that his course of action generally was to reserve the gruffs of one grinding to go into the mill with the next lot.

Mr. CLARIDGE DRUCE said that in the examination-room this difficulty was sometimes presented to the candidates and examiners. For example, in the case of digitalis the candidates would get leaves to make a powder for a pill, and, of course, they found difficulty in reducing the stalks to powder, and rejected them, the result being that the powdered digitalis used was bound to be therapeutically stronger than the leaves taken. In the same way, when the infusion was made, some would cut out and reject the stalks. The same thing would happen in the case of lobelia. He maintained that when a drug was to be powdered and sifted, the whole of the drug should pass through the sieve. (Applause.)

Dr. SYMES said the difficulty was to get the whole through. (Hear, hear.) One had to dry a drug higher than he otherwise would, and he thought that it was on the whole better to have a coarse powder without drying than a fine one high dried with probably part of the active principle destroyed. Drugs for a No. 20 powder did not require to be as dry as for a No. 60. It was very desirable that they should be uniform, but it was possible sometimes to sacrifice virtue to that principle. (Hear, hear.)

Mr. BREWIS said that in sifting through a No. 20 sieve here was a fair amount which would pass through a No. 40. That was what he understood a No. 20 powder to be. The way he had done in such cases was to put the stuff that would not pass through the sieve at the bottom of the percolator, and on the top of it the sifted powder. This he found to be a good way of getting out of the difficulty.

Mr. ABRAHAM pointed out that the experience of wholesale houses was not of much use to retailers, who had to work upon small quantities, and he instanced the case of senega, which it was not possible to reduce to powder without a large amount of gruffs. What he had aimed at in his practice was to have the same amount of gruffs every time—say, 2 oz. or 4 oz. for the pound of drug employed.

Mr. PARKER, in reply, said the whole matter sifted down to a very narrow point of issue. Mr. Naylor put it clearly—viz., that the whole of the important part of the drug taken should be powdered and used in making a preparation. The U.S.P. said that a No. 40 powder was one which passed through a No. 40 sieve, but a small proportion of that might pass through a No. 60 sieve. It was that problem that he addressed himself to, and what he wanted to make clear was that when wholesale houses were asked for a certain powder, they should not begin with an amount of the drug, powdering it and sifting off No. 60, and selling that to a man who wanted No. 60; then sieving off No. 40 and selling it to a man who wanted No. 40, and No. 20 in the same way. For, as would be seen, these powders from a single grinding would be of different potencies.

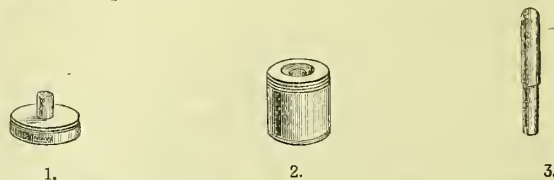
At this point there was some doubt as to whether the Conference should not adjourn, it now being 3.45; and Dr. Symes intimated that brakes were waiting to take the members on the river excursion; but the PRESIDENT was averse to adjourning the Conference until the tenth paper was taken.

TABLET-MAKING AT THE DISPENSING-COUNTER.

By Stewart Hardwick.

The author stated that the machines recommended in published papers on this subject are generally expensive,

and the process of mixing and granulating the powder necessary in manipulating them appears too troublesome, and takes too long a time when working on quite a small quantity; for instance, when a prescription is received for one dozen tablets of hydrochlorate of morphia $\frac{1}{30}$ gr. each, or hydrobromates of hyoscyne $\frac{1}{300}$ gr. each. He therefore communicated this note to show what can be done towards meeting the demand for medicines in the tablet forms with a small and inexpensive apparatus sold by Messrs. S. Maw, Son & Thompson.



Maw's tablet-compressing apparatus. (1) Lower mould; (2) Cylinder to cover No. 1; (3) Upper plug mould.

When drugs are given in small doses, as to bulk, such as the alkaloids, arsenious acid, calomel, grey powder, podophyllin, aloin, sulphite of calomel, &c., they generally only require to be triturated with a convenient quantity of sugar of milk, and then compress easily. This class of tablet should be made to weigh 2 gr. each, that being a suitable quantity to work in the machine. The sugar of milk should be in crystals, and the trituration of the drug carried out without great pressure, as a very fine powder does not compress well. Should there be a tendency for the tablet to stick in the die, or split, the addition of a trace of heavy paraffin oil, sprayed over the powder, generally overcomes the difficulty. Another method is to add $\frac{1}{2}$ gr. of cocoa-powder (from which the oil has been expressed) in place of an equal quantity of sugar of milk. This greatly facilitates compression, the trace of oil in the cocoa preventing the tablets sticking in the mould. The formula is—

Medicament as ordered.

Cocoa-powder	$\frac{1}{2}$ gr.
Sugar of milk to	2 „

No difficulty is experienced in making such a powder into tablets with a blow of the hammer, the dispenser being able to turn them out with ease and certainty in not more time than would be required to make the same quantity into pills, or put it up into cachets. The author has not met with a single objection to the colour of the resulting tablet, while the facility of manufacture gained by the use of cocoa is a great advantage, as is also the convenience of having a general excipient applicable to a large class of tablets.

Tinctures of aconite, belladonna, digitalis, strophanthus, nux vomica, &c., may be mixed with the sugar of milk and evaporated over a water-bath, the cocoa-powder added, and the mixture compressed in the usual way.

Tablets of extract of cascara sagrada and combinations of cascara sagrada and podophyllin are easily made. The dried and powdered extract should be used, half its weight of liquorice-powder added, and a trace of heavy paraffin oil sprayed over the powder.

Other tablets requiring special notice are—

Caffeine citrate, which may be compressed without the addition of any excipient.

Grey powder: 1 gr. requires the addition of 2 gr. of sugar of milk and a trace of heavy paraffin oil.

Quinine sulphate: 1 gr. works well with the addition of 1 gr. of starch and a trace of paraffin oil.

Other tablets of this class may generally be made on these lines without difficulty, the great point being to keep the machine perfectly clean, and dust it occasionally with French chalk.

The author stated that he has a similar machine of larger diameter, which is used for making 5 or 10 gr. tablets of such salts as the bromides of potassium, sodium, and ammonium (easily compressed without the addition of any excipient), salol, phenacetin, and sulphonal. These latter are also easily made into tablets, but require the addition of 1 gr. of starch to each 5 gr., when the resulting tablet disintegrates beautifully on the addition of water. Effervescent powder, such as a mixture of citric acid and bicarbonate of

sodium, is useless as an addition for producing a disintegrating tablet.

Bismuth carbonate is very difficult to make into tablets; the free addition of starch and the use of the paraffin spray somewhat meets the difficulty. The salt with bicarbonate of soda compresses well, if the mixed powders are slightly sprayed with paraffin oil.

The author concluded by expressing the opinion that, since it is a common custom for medical men to order tablets, it is the pharmacist's duty to give him as wide a scope as possible in ordering. The prescriber should be able to order in that form any drug or combination of drugs he may require which come within the limitations of a tablet, just as he may order any combination in a pill, within the limits of that form.

DISCUSSION.

355. Mr. Hardwick passed round a number of samples of tablets made in the apparatus, as well as the apparatus itself, and these seemed to be much admired. The President commended the paper.

Dr. SYMES said that the best results could not be got by concussion, as with Mr. Hardwick's apparatus, but by pressure. There was a small machine with a lever, which was very good for the dispensing counter, and which he used regularly in his pharmacy. The great difficulty with Mr. Hardwick's apparatus was to get the tablets uniformly compressed. As a matter of fact, they could never get them always of the same size.

Mr. MARTIN said that he had had considerable experience in making tablets, although he was not fond of that form of medication. Still, as the doctors would have them, he had been accustomed to make them by compression. He was surprised that the tablets which Mr. Hardwick had passed round were so good, and he complimented him upon his results. He agreed with what Dr. Symes had said, and stated that the Americans made a number of machines which were suitable for making a dozen or so tablets at a time. The great secret on the large scale was to have the powder of a proper degree of granulation, so that it might run into the machine regularly. When that difficulty was overcome there was no trouble at all in making compressed tablets.

Mr. J. RYMER YOUNG rather sarcastically referred to

tablets as a form of medication he did not approve of, and he did not see where the reason came in in taking pains to make a powder, such as subnitrate of bismuth, in a suitable form for compressing, and at the same time working into it something that would make it disintegrate. He asked Mr. Hardwick how he ensured that the tablets would always be of the same weight. His difficulty had been to prevent variation, as, for instance, from 2 to 8 gr in the case of 5-gr. tablets. He asked Dr. Symes whether the machine that he referred to was to be got. Dr. Symes replied that he would bring the machine to the meeting next day.

Mr. TOONE (Bournemouth) said that the Conference owed Mr. Hardwick very warm thanks for bringing this paper forward. He said without disrespect to scientific papers that such matters as these were of interest to them all. (Hear, hear.) He himself had made many thousands of tablets during the past few years, and he did not quite agree with the remarks which had fallen from Mr. Young regarding them. In his experience there were several physicians in Bournemouth who wished to give some medicines in tablet form in preference to powders, and they were certainly more elegant, neater, and surer in dosage than powders. In the case, for instance of calomel and hyd. cum creta they found that tablets were much preferred to powders. At first they bought them from Y. Z. & Co. or X. W. & Co. (Limited)—(laughter)—but when a combination was ordered which was not listed by such makers they naturally began to make them themselves. He mentioned how the use of chocolate had somewhat confused one of his local doctors, and as it was in a measure objected to, the speaker and one of his assistants had put their heads together, with the result that they found that a small proportion of manna gave a perfectly white tablet when calomel or any other colourless powder was ordered.

Mr. H. KEMP (Manchester) asked Mr. Hardwick if he could explain how to keep the edge of the piston-mould from getting abraded.

Mr. HARDWICK then replied. He said that he divided the powders with an accurate boxwood measure, and was never more than a grain out in twenty-four tablets. The sticking of the mould referred to by Mr. Kemp was really a question of care. They should always ensure that the mould and piston were well greased before putting them away. The Conference then adjourned for the day.

THIRD SESSION, WEDNESDAY MORNING.

THE PRESIDENT, in opening the proceedings at 10.10 A.M. said he had a letter from Mr. Benger, ex-President, and Vice-President at the present time, who stated that he intended to have been present on the previous day, but unfortunately he was not well, and added, "Will you kindly say how disappointed I am to miss the opportunity of meeting many old friends and colleagues?"

The reading of papers was then resumed, the first being on

THE EFFECTS OF CLIMATE AND SOIL ON OILS OF PEPPERMINT.

By John C. Umney.

In the discussion following his paper on "Black and White Peppermint Oils," read at the February evening meeting of the Pharmaceutical Society, the author stated that he was in correspondence with distillers in the United States with a view to ascertain the varieties of peppermint principally cultivated there, and to determine the effect of climate and soil on the essential oils of plants of the same varieties cultivated in different countries. He now recalled the fact that the principal difference found between black and white Mitcham (England) oils is in the proportion of menthol esters present, the latter being as high as 14 per cent., whilst the former usually does not exceed 7 per cent. He has since confirmed these ester percentages on other samples, and, although they may be to some extent modified by the method of distillation, they appear to be distinctly characteristic of the two varieties. An authentic sample of oil distilled in the United States from white peppermint could not be obtained, but samples of oil distilled from plants grown in America from black Mitcham roots and

Japanese roots respectively were obtained, and these the author examined with the following results:—

Oils Distilled from Black Peppermint (*Mentha Piperita*)

Grown in	Sp. Gr. at 15° C.	Optical Rotation in a tube of 100 mm.	Menthol as Ester	Total Menthol	U.S.P. Colour Reaction (2 cc. of Oil with 1 cc. of Glacial Acetic Acid and 1 drop Nitric Acid)
			per cent.	per cent.	
Surrey (Mitcham)	.9036	-25.5	37	63.1	Light blue
Lincolnshire (Market Deeping) ..	.9072	-28.5	5.0	62.7	Light blue
Michigan, South..	.9095	-31.0	8.2	71.0	Blue with copper fluorescence
" North..	.903	-30.0	8.1	63.0	Blue with copper fluorescence
Wayne Co., N.Y....	.9035	-27.0	10.8	59.1	Intense bluish-violet with copper fluorescence
" " " "	.908	-26.5	12.2	58.4	Very intense bluish-violet with magnificient copper fluorescence

The samples of oil distilled in the United States from black Mitcham plants vary in ester percentage somewhat, but the ester percentage in the Wayne County is in each instance higher than the Michigan, the other figures, however, showing but slight variation.

The ester percentages of the American oils are higher

than usually found in black peppermint oil from plants of the same variety cultivated in this country, but the physical characters and total menthol are very similar.

The plants grown from Japanese roots (*Mentha arvensis* var. *piperascens*) are much cultivated on account of the larger proportion of oil they yield per acre. The sp. gr. vary from .902 to .905, and the percentage of esters of menthol present are low, one sample yielding only 2.5 per cent., the lowest ester percentage the author has obtained in any peppermint oil.

Oils Distilled from Japanese Peppermint (Mentha arvensis var. piperascens).

Grown in	Sp. Gr. at 15° C.	Optical Rotation in a Tube of 100 mm.	Menthol as Ester	Total Menthol	U.S.P. Colour Reaction (2 cc. of Oil with 1 cc. Glacial Acetic Acid and 1 drop Nitric Acid)
			per cent.	per cent.	
Michigan, U.S.A.	.9027	-27.0	25	66.0	Pale violet tinge on standing
Michigan, U.S.A.	.904	-28.5	31	63.4	Pale violet tinge on standing
Kent (England) ..	Insufficient for	determination			Pale violet coloration
Japan (normal) ..	.9062	-35.25	5.8	70.6	Violet coloration
Japan (normal) ..	.902	-39.9	2.8	72.2	Pale violet coloration

In his February paper mention was made of the U.S.P. colour-reactions for peppermint oils, as affording striking differences between oils of high and low ester value—taking the white Mitcham oil as the one extreme and Japanese oil as the other extreme—and it has been noticed, in continuing the examination of these freshly-distilled oils, that the intensity of the coloration produced by acids follows the ester percentage without exception.

The colour-reactions of peppermint oil with various acids was first noticed by Flückiger, and was subsequently the subject of considerable experiment by Frebault, who regarded the reaction as dependent upon separation and combination of the colouring-matter contained in the oil of peppermint—a comparison being instituted between the behaviour of these bodies and chlorophyll under similar conditions. Rocher stated that the reaction was not due to menthol, and Flückiger and Power suggested that the colour was due to substances which combine with alkaline bisulphites. More recently Polenske has investigated the matter, coming to the conclusion that the reaction is probably due to phylloxyanin.

In his previous paper the author showed that after removal of the esters from white oil the colour-reactions with acid were much less intense, and experiment also shows that the view of Flückiger and Power that it is dependent upon aldehydic bodies is incorrect, as oils give nearly as intense colour-reaction after treatment with acid sulphite of sodium as before. Moreover, after reduction with zinc-dust intense colour-reactions can still be obtained with acids. In order to determine whether the condition of the herbs for distillation, rather than the different varieties, causes the differences in these reactions, the author distilled a small quantity of fresh Japanese peppermint (*Mentha arvensis* var. *piperascens*) grown at Sevenoaks, by Mr. Holmes, and the behaviour of the oil with nitric acid in glacial acetic-acid solution is precisely the same as in the oils distilled from the same species grown in Japan and America, the palest-violet coloration being produced. It seems unquestionable, therefore, that this very slight colour-reaction may be considered as typical of oils of Japanese peppermint. It is also curious that if the reaction be due to phylloxyanin, that this body should be obtained in larger quantity from both varieties of *Mentha piperita* than *M. arvensis* var. *piperascens*. It should be noted also in this connection that by repeated distillation of the oil, under reduced pressure, the intensity of these reactions is not diminished.

From the results above recorded it seems possible that the oil produced in America from Mitcham black-peppermint plants is slightly modified and in certain districts the ester percentage materially increased. The higher ester value of French over English lavender oils was discussed in the

author's paper on essential oils (*P.J.* 3, xxv., 980), and the opinion expressed that ester determination may be taken as a basis of comparison of oils of the same type. The softness of the French lavender oil compares with the pungency of English oil, much as does a high-ester white Mitcham peppermint oil with a black Mitcham oil, or more markedly still, a Japanese oil. It is unlikely that the higher ester percentage of many Wayne County as compared with Michigan and other American oils is due solely to superior methods of distillation. It is unfortunate that the American oils so frequently contain spearmint and Erigeron oils, as that depreciates considerably their value even though the menthol and menthol-ester percentages are high. The difference in climate and soil appears to effect but little alteration in the oil distilled from plants grown in England and America from Japanese roots, the total menthol percentage being only slightly reduced.

Mr. Hartford, of New York, supplied the author with samples of various American-distilled oils, and Mr. T. Christy, F.L.S., gave him peppermint plants of the different varieties. Each of whom he thanked.

DISCUSSION.

The PRESIDENT said that investigations in essential oils were daily becoming of greater importance, and much more had been heard regarding their composition recently. Mr. Umney had done some good work in regard to peppermint and other essential oils, and the Conference was indebted to him for the present paper.

Mr. JOHN MOSS regretted that a few months ago he had disposed of some oil distilled from Japanese peppermint grown in his own garden. He had had it by him for a few years, and had he only kept it a little longer he might have been able to assist Mr. Umney. The paper was exceedingly interesting, and Mr. Umney had thrown a great deal of light upon the composition of peppermint oils, especially showing that it was the high percentage of esters in white-peppermint oil which makes it superior to the black. Mr. Umney would do further service if he could show how to distinguish between a mixture of Japanese and English oils, and a genuine English one.

Mr. MACEWAN said this was an important contribution to the chemistry of oils of peppermint which Mr. Umney had studied so assiduously. He (Mr. MacEwan) considered that the paper was equal in importance to Mr. Umney's last one, in which he so clearly distinguished the differences between oils of white and black peppermint grown at Mitcham. On that occasion it was suggested, he thought, by Mr. Holmes, that the effect of cultivation—or, rather, the effect of difference of soil and climate—upon Mitcham peppermint might be studied by Mr. Umney; and it seemed to him that, apart altogether from the chemical work involved in the paper, they were greatly indebted to Mr. Umney for the amount of trouble and painstaking care evidenced in securing the samples from the United States. (Hear, hear.) But the paper had brought out what he believed to be a most startling fact. He learned from Mr. Umney that one of the greatest difficulties that English peppermint-growers had was to prevent the white mint from reverting back to the black. Well, here they saw that the effect of growing black Mitcham peppermint in Michigan and Wayne County was to bring it practically to the white, because the figures which Mr. Umney had placed upon the blackboard clearly showed that the oil distilled from black peppermint grown in the United States was more nearly allied to the white peppermint grown in Mitcham. That was a very important fact which had been brought out by Mr. Umney. There was a great deal still behind the subject, which one could only become acquainted with by becoming an American distiller, and he thought Mr. Umney had taken the matter practically as far as anyone could take it, and that the Conference was very much indebted to him. (Hear, hear.)

The PRESIDENT said of course the fine flavour of English peppermint was largely due to the careful growth and manuring that was followed at some of the centres of cultivation at Mitcham and elsewhere. The esters that Mr. Umney had mentioned went very high, and it was surprising that the one from Wayne County included 10 per cent. He thought their thanks were due to Mr. Umney for following up the investigation.

Mr. UMNEY, in reply, said by his test it was not possible

to distinguish the presence of a small quantity of Japanese oil in the other oil, but there was not the slightest doubt that the superiority of English peppermint oil over American peppermint oils was simply clean fields. There was not a weed to be seen in the Mitcham beds, and he believed it was solely for that reason that the English oil was superior to American oil, and consequently commanded between five and six times the price that the American oils did.

10.30. The next paper was read by the author.

WHITE-WINE VINEGAR.

By Alfred H. Allen, F.I.C., F.C.S.

In opening this paper the author referred to the strange ways in which the original meanings of words are perverted. "Vinegar" is derived from *vin aigre*, "sour wine," so when we speak of "white-wine vinegar" we literally mean "white-wine sour wine." We all know that vinegar is defined "by authority" to be "an acid liquid, prepared from a mixture of malted and unmalted grain by the acetous fermentation," though the sponsor for this description has since sought to extend the meaning of the term so as to include any liquid of which acetic acid is the most tangible constituent. This modified view of the nature of vinegar has not met with general acceptance, either by analysts or judicial functionaries, the definition meeting with the widest approval being that vinegar is an acid liquid produced by the alcoholic and acetous fermentations of a vegetable juice or infusion. This description includes vinegars prepared from malt, wine, raisins, cider, &c., but excludes acetic acid produced by the distillation of wood. Where it is desired to define the nature and origin of the vinegar more clearly it is easy to describe it as "malt vinegar," "wine vinegar," "sugar vinegar," "cider vinegar," &c. The term "white-wine vinegar" appears to me to be merely a more precise description of the nature and origin of the vinegar, as it clearly points to its origin in the wine from the white grape. To call dilute acetic acid "white-wine vinegar" is, the author thought, illogical, and the practice should be deprecated, although the dilute acid has almost acquired the prescriptive right to be so called, and purchasers might be dissatisfied if they got anything else. The author then submitted analyses of two samples purchased in a Midland town:—

	Parts per 100 measures	
	A	B
Acetic acid	6.37	6.49
Extractive matter	1.42	1.55
" containing mineral matters ..	0.28	0.30
" with alkali (K_2O)	0.046	0.046

The following are the results from genuine white-wine vinegar:—

	C	D
Sp. gr.	1.0197	1.0211
Acetic acid per cent.	7.98	7.78
Extractives—		
Albuminous matter	0.10	0.19
Carbohydrates, &c.	1.65	1.65
Mineral matters	0.20	0.53
" containing phosphoric acid ..	trace	0.065

Genuine white-wine vinegar always contains a notable quantity of acid potassium tartrate, which is not present in vinegar from other sources. Finally, the author submitted results of analyses of samples purchased by ordinary retail as "half-a-pint of white-wine vinegar," which showed that dilute acetic acid, sometimes slightly coloured yellow, was supplied in each case. The prices ranged from 1½d. to 4d per pint. The labels were—"Pure white-wine vinegar," "Vinegar," "Acetic-acid vinegar," "White-wine vinegar," and "Distilled malt vinegar." The author thought that the use of genuine white-wine vinegar for pickling is wasteful; but it has gone out of fashion, and it is questionable if it will ever come in again. Indeed, it would disappear altogether if retailers would discourage the use of the name, and sell dilute acetic acid for what it is.

DISCUSSION.

The PRESIDENT said the subject had attracted a little attention during the past twelve months. It was difficult at the present time to purchase retail the vinegar Mr. Allen had referred to.

Mr. CARTEIGHE confessed that when he saw the case that Mr. Allen referred to he was very much disappointed, and he had been still further disappointed at the comments made upon it that the great majority of their friends in pharmacy were so ignorant of what white wine really was. He made these remarks with greater regret because thirty years ago and more the educated pharmacists of this country were the people who introduced and sold real white-wine vinegar. They taught the public what a beautiful thing it was, and the notion of Mr. Allen that it should disappear was not one that ought to be assented to for a moment, because we, in this country, were gradually learning what good living really was. (Laughter). We always knew what substantial feeding was, but now we were learning the art of living—(renewed laughter)—and those who had once had a salad made with proper white-wine vinegar would never touch malt vinegar afterwards. (Hear, hear.) He maintained that it was the duty of every pharmacist to sell white-wine vinegar and no preparation whatever of acetic acid. They might just as well sell alcohol for wine, and he sympathised very much with those public analysts who had to go before magistrates on this question. One could not speak for certain without reference, but he was under the impression that instead of putting vinegar into the '51 Pharmacopœia they put in diluted acid. Mr. Martindale would put him right if he was wrong. He had a recollection of reading in his student days that Phillips practically said, "This is, of course, a very much better preparation made from the chemical mixed with water." And so some of their brethren gradually came to the opinion that acetic acid *plus* water was the proper vinegar. Some of the finest vinegar that was now obtained was the old vinegar, and the older it was the more beautiful it was, and it was never white. He had seen it almost red. Wine vinegar was a preparation which should be sold by every pharmacist to the public for the benefit of the public, so as to meet the public taste and improve the chemist's pocket. (Cheers.)

Mr. NAYLOR asked whether it was not a fact that it was extremely difficult to get what the public understood by white-wine vinegar, and whether such an article was obtainable as had been described by Mr. Allen—viz., one which had the characteristic odour, and which contained the proper percentage of inorganic matter, or of matter which was not distillable. They had been frequently asked for this article, and they had tried in many quarters to get it. Out of a large number of samples with which they had been supplied, all had proved to be simply a distilled article, and contained, perhaps, about $\frac{2}{10}$ per cent. of solid matter, but no more. He was aware that it was not difficult to obtain a wine vinegar which was coloured, but that, apparently, the public would not want. They expected to find it as coloured as diluted acetic acid. His point was this—Was such an article as the public required obtainable in this country in quantity? A further point was this—Had those who had had an opportunity of storing what was known as white-wine vinegar found that it kept well? He had been told that the reason why it was not stored now in quantity was that it became muddy so frequently.

Mr. PARKER said there was one point in reference to the subject where they had considerable difficulty. A retail chemist in the less educated neighbourhoods had two subjects to consider—one being to give what the customer asked for, and the other what the customer wanted. Now, the definition of white-wine vinegar a retail chemist had to decide upon according to the district in which he was placed. He believed there were many districts in which white-wine vinegar was constantly asked for, but a colourless acetic acid wanted. Such a chemist would simply drive away his business if he supplied the real article, and he was placed in a very difficult position. He knew that the bulk of the customers who came and asked for white-wine vinegar really wanted acetic acid. If he supplied white-wine vinegar it would probably be returned, and he would be told that that was the wrong article. Therefore, the question arose as to how far it was the duty of the chemist to educate his

customers. The chemist soon got tired of telling his customer the difference between real white-wine vinegar and what he supplied; and the point was, should he give what the customer asked for or what the customer wanted.

Mr. J. SLINGER WARD quite endorsed Mr. Naylor's statement, and said it was extremely difficult to get white-wine vinegar.

The PRESIDENT remarked that it was not so in France.

Mr. PAYNE (Belfast) said, as far as his experience went, diluted acetic acid was invariably supplied. If they sold white-wine vinegar it would be returned with the remark that "it is not the right thing you have given me." In other words, the majority of customers required diluted acetic acid. The question arose, therefore, Should firms adopt another name, say "white vinegar," or some other name? The public would be as well satisfied if it was labelled "white vinegar," but if it was labelled "acetic-acid vinegar" the majority of customers, especially in poorer neighbourhoods, would return it and say, "We do not want acid; that will burn our insides out." (Laughter.)

Mr. DRUCE said that they had three views brought before them. They knew what distilled vinegar was; also that some sections of the public wanted dilute acetic acid when they asked for "white-wine vinegar"; but they were indebted to Mr. Carteighe for reminding them of the existence of a true vinegar which, when mixed with a due proportion of pure oil, gave them that dressing which they all relished when associated with a good salad.

Replying to Mr. Conyngham, the PRESIDENT said there were three different things sold—(1) The genuine white-wine vinegar, which was not white, but, as he had generally known it, it was of a clear olive tint; (2) there was distilled vinegar, which was white and was distilled malt vinegar; and in addition there was diluted acetic acid, and that appeared to be very largely sold in England for white-wine vinegar, white vinegar, and other things. So notorious did this become that it was announced at Islington some time ago a certain grocer put up outside his shop, "Vinegar, warranted free from acetic acid." (Laughter.) He meant that it was not merely acetic acid, but it was genuine brown vinegar. A matter which made it very unpalatable for salads was the presence of sulphurous acid.

Mr. CARTEIGHE asked Mr. Allen whether he did not think that the difficulty could be got over by a process of education, just as the milk of sulphur had been got over. He dissented from the proposition that to very poor or ignorant customers they should sell as vinegar that which was acetic acid and water.

Mr. ALLEN, in reply, said he agreed that there were three things sold as white-wine vinegar, and he could not but feel that the point raised by Mr. Carteighe was the correct one.

wine vinegar was for making pickles. What the public required really, he thought, was a strong vinegar, and that they thought they could get when they asked for white-wine vinegar. Personally he should like to see it revived, as Mr. Carteighe suggested. It was an article of a very fine character, and it was as different from malt vinegar as malt vinegar was from some of those concoctions which now played the part of vinegar in some households. He was somewhat of a *connoisseur*, and he thought he might, by tasting, be able to make a very good shot as to the origin and manufacture of the different vinegars in use. With regard to Mr. Naylor's question as to what the public expected when they asked for white-wine vinegar, his opinion was, as he had said, that they wanted a strong vinegar, and they had unfortunately been taught—and he thought the best pharmacists had contributed to the error—to ask for that. At any rate, what they had to do now was to meet the requirements of the present day. He suggested that that could be done by labelling the article which was sold as "Distilled vinegar, commonly called white-wine vinegar." They would thus be relieved from any responsibility, and they would be educating their customers to some extent at the same time. "White vinegar" itself did not quite meet the point. It was with a view of learning the different opinions of those who were present that he had ventured to put these remarks before the meeting. (Cheers.)

The PRESIDENT said thanks were due to Mr. Allen for his paper which had led to an interesting discussion. The ventilation of the subject, he was sure, in the pharmaceutical and other journals, would be of some service in educating the public.

Mr. ALLEN next read the following paper:—

CONDENSED MILK.

By Alfred H. Allen.

Commercial condensed milk is prepared by concentrating milk to about one-third of its original bulk.

Three distinct varieties of condensed milk are manufactured. Those of Class I. are simply concentrated to about one-third, and receive no addition, or only a small quantity of preservative. Those of Class II. are treated, after concentration, with a large quantity of cane-sugar. Glucose and glycerin have also been employed, but the milks thus treated do not appear to be now found in commerce. The milks of Class III. receive special treatment, with a view of giving them a composition approximating to that of woman's milk. The so-called "humanised milk" belongs to this class.

The following analyses show the composition of some of the leading brands of sweetened condensed milk:—

Brand	Description on Label	Total Solids	Fat	Proteids	Milk-sugar	Ash	Cane-sugar (by difference)	Analyst
Alderney ..	Guaranteed to contain 60 per cent. of original cream	68.10	11.05	10.95	—	—	—	Allen
Arcadia ..	From best and purest cows' milk	71.20	8.08	10.25	—	—	—	Allen
Cowslip ..	Skimmed; guaranteed to be entirely pure	70.9	1.4	11.4	14.6	1.6	41.9	P. & M.*
Devon ..	From skimmed milk	70.60	8.50	10.63	—	—	—	Allen
Farm ..	From skimmed milk	68.60	0.12	10.14	—	—	—	Allen
Fourpenny ..	From pure fresh milk containing all its cream	76.5	10.4	9.8	13.0	2.0	41.3	P. & M.*
Full-weight ..	Warranted not skimmed	76.5	11.0	12.3	13.5	2.5	37.2	P. & M.*
Goat ..	From skimmed milk	71.0	1.2	9.9	12.0	2.0	45.9	P. & M.*
Milkmaid ..	Swiss (genuine)	76.3	11.0	9.7	14.6	2.3	38.7	P. & M.*
Rose ..	Warranted not skimmed	76.6	12.4	8.3	17.6	2.2	36.1	P. & M.*
Threepenny ..	From skimmed milk	66.25	0.30	10.49	—	—	—	Allen
Nestlé's Swiss	From pure milk of Swiss cows	77.2	13.7	9.7	15.0	1.6	37.2	P. & M.*

* Pearmain and Moor.

With regard to the President's observations about sulphurous acid, he endorsed them entirely. He had had occasion to take glacial acetic acid and freeze it, with a view of getting a better article, and that which was drawn away was so contaminated with sulphurous acid as to be practically useless. As to what Mr. Carteighe said, he felt distinctly that it was a great misfortune that the term "white-wine vinegar" (which literally meant vinegar made from hock or sherry) for a liquid which was the colour of sherry, had become so degraded as to mean acetic acid. It appeared that the great use now for the article known as white-

The following analyses show the composition of some of the leading brands of unsweetened condensed milk:—

Brand	Description	Total Solids	Fat	Proteids	Milk-sugar	Ash	Authority
First Swiss	Unskimmed	36.7	10.5	9.7	14.2	2.1	P. & M.*
Viking ..	Full cream	35.1	10.4	9.1	13.8	1.8	A. H. Allen
Hollandia ..	Best quality	43.0	9.8	11.3	18.5	2.5	P. & M.*
Italian ..	Sold to trade for diluting	44.6	9.5	14.7	16.5	3.5	P. & M.*

* Pearmain and Moor, *Analyst*, December, 1895.

The extent to which concentration has been effected may be judged from the proportion of total solids. The proportion of ash forms an independent criterion, but this is liable to be vitiated if mineral preservatives have been added. Further, a deposition of certain salts is liable to occur during evaporation, and this circumstance tends to diminish the proportion of ash.

As the fat of whole cows' milk is always sensibly in excess of the proteids, it will be at least as high as the proteids in the condensed preparation provided that no fat was removed before concentration. There is considerable inducement to remove a portion of the fat prior to concentration, as fat is liable to separate from a very rich milk, and this difficulty has only been overcome of late years.

Good cows' milk, concentrated to one-third of its bulk, would contain about 11.2 per cent. of fat, 10.5 of proteids, 14.5 of milk-sugar, and 2.1 per cent of ash.

From the figures in the table it will be seen that the proportion of added sugar is fully equal to that of the true milk solids in the concentrated milk, and is three times as great as the milk-solids of the milk before concentration. Nevertheless, the statement is made on some labels that "only a small quantity of pure cane-sugar has been added."

One of the serious consequences arising from the employment of so much sugar is that the milk is unsuitable for ordinary purposes unless mixed with such a proportion of water as to dilute it far beyond the bulk of the milk before concentration. Some of the labels bear a statement that if mixed with from three to five volumes of water the milk may be used as a substitute for cream. It certainly may be so used, and has, will have, the outward appearance of cream, but will contain less fat than is present in ordinary uncondensed new milk, instead of 25 per cent. of fat, which is the minimum proportion present in true cream.

Two years since many of the condensed milks of commerce were made from partially-skimmed milk, but these have now nearly disappeared; but articles made from milk from which the cream has been removed with the completeness only practicable by the employment of a centrifugal separator, are largely met with, and in some cases are described as "prepared from partially-skimmed milk." The character of commercial brands of condensed milk is liable to change from time to time, while if the quality of a particular brand be challenged, certain manufacturers simply rechristen the product, and reissue the old tins with new labels as some other brand.

Sweetened condensed milk is far from being an ideal food for infants, and even the unsweetened brands possess the disadvantage of readily curdling and of containing less milk-sugar and a larger proportion of proteids than are present in normal human milk. To meet these defects the so-called "humanised condensed milks" are now manufactured. In these preparations human milk is imitated by condensing cows' milk to one-third of its bulk, and adding cream and a saturated solution of milk-sugar to bring the mixture to the required composition. The following are analyses of some of the leading brands of humanised milk.* For comparison I have added the composition of normal human milk if concentrated to one third:—

	Solids	Fat	Pro- teids	Milk- sugar	Ash	Authority
"Cradle" brand	29.9	9.5	3.1	15.5	1.8	P. & M.
Edwards's humanised milk ..	44.0	13.5	7.0	21.2	2.0	P. & M.
Human milk reduced to one-third	39.8	12.4	6.0	20.8	0.6	A. B. Leeds

As a matter of fact, Edwards's humanised milk is the latest form of the preparation originally introduced as the "Cradle" brand of condensed milk. A highly reprehensible statement, made on the labels of many brands of condensed milk, is that, for infants' use, the preparation should be diluted with from 6 to 14 parts of

water. This direction, if carried out to the extreme limit, would yield a fluid containing only 4 per cent. of milk solids, and in some cases less than 1 per cent. of fat (instead of $3\frac{1}{2}$ to 4 per cent.). In some cases the statement is made that nurses are disposed to add too little water.

An attempt to feed an infant in accordance with the directions on some of the brands of condensed milk can have only one of two results—either the child will be half-starved, or it will have to imbibe such an enormous quantity of fluid as cannot fail to be a serious strain on its system.

Unfortunately, such flagrant cases of misrepresentation as disgrace the condensed-milk trade are not punishable under the Sale of Food and Drugs Act, and the proceedings which are possible under other enactments lack the necessary initiative.

The Committee on Food Products' Adulteration, in their report just published, recommend that in the case of condensed milk made from skimmed milk, the label of the tin should describe the contents in large and legible type, and that a notification should be printed thereon that such milk is not suitable for the purpose of feeding infants and young children. Unfortunately, the Committee do not seem to have realised the grave mischief caused by false statements respecting the dilution of the condensed milk which should be practised when intended for the feeding of infants.

DISCUSSION.

The PRESIDENT said the paper was of great interest. The sale of condensed milk was a large industry, and it had an important bearing on public health.

Mr. CONYNGHAM said he thought the question of condensed milk was a very serious one for the public at large. Children brought up on condensed milk, he had been informed by medical men, suffered in many cases from abscesses in the mouth and gums, showing want of nourishment, and if it went on it would be a more serious matter for poor people and others who fed their children on condensed milk.

The PRESIDENT said much as he agreed with what was stated by Mr. Allen there was an important point in this way; condensed milk was an important food for the poor, especially in large cities; and for young children it certainly was better than cows' milk that had been preserved. He was inclined to think that of the two evils it was better to use condensed milk, if it be used discreetly and carefully, than to use preserved milks that had either a slight tendency to become putrid or had been preserved by injurious constituents. He could not but think that the use of condensed milk was better than that of preserved milks such as were often sold by dairymen in big cities. He knew several children who had been reared on condensed milk largely, and they had not suffered. He had known children who had been almost entirely reared upon it in their young days and had grown up as healthy children. Therefore it was a wide and sweeping assertion to say that condensed milk was not a good food for young children.

Mr. CARTEIGHE said he did not quite catch what the best sample was. Did he understand that cane-sugar to the extent of 10 per cent. was found in many of the brands of condensed milk?

Mr. ALLEN replied that Mr. Carteighe had quite correctly understood him. The amount of cane-sugar varied from 30 to 40 per cent., and the result was that if the right amount of water were added it became a thick cream which no baby could suck, and it was, therefore, absolutely necessary to add more water. To lead the public to suppose that they would get an article suitable for infant-use by adding 14 parts of water when they ought to put 2 parts of water, was scandalous, and it was unfortunate that they had no means of preventing people from telling any lies they liked by label. He was not a lawyer, and it might be that under the Trades Marks Act or other enactments they might be reached, but they could not be reached under the Sale of Food and Drugs Act. Speaking broadly, his opinion was that condensed milk was not a good food for infants, and that when largely mixed with sugar it became starvation food.

The PRESIDENT said the analyst wanted some definition of what condensed milk was, and they wanted to prevent

* The Aylesbury Dairy Company also prepare a "humanised milk" having the following composition:—Total solids, 10.57; fat, 4.05; proteids, 1.33; sugar, 4.70; and ash, 0.49 per cent. As this preparation is not concentrated it does not fall within the scope of this paper.

the public from being deceived in the way they were by sweetening the condensed milk with so much sugar.

11.15. Mr. ELBORNE was then called upon to read the following notes:—

NOTES.

By William Elborne, B.A., Phar. Chem., &c.

Potassa Sulphurata.—The author showed that the green and dark-green varieties of commercial sulphurated potash are prepared from commercial carbonates of potash containing a large proportion of sodium salts and chlorides, and that such samples, when dissolved in water, afford a dark turbid solution, the turbidity being due to finely-divided carbon. Samples prepared from purer carbonates (90 per cent. K_2CO_3) yielded a product of a dull-yellow or greenish-yellow colour, freely soluble in water without turbidity, yielding a bright-yellow solution. For the production of sulphur-baths, the use of the latter product might very well be sanctioned in the Pharmacopœia, and the amount soluble in rectified spirit be restored to three fourths its weight.

Cotton-seed Oil.—One of the queries in the B.P.C. "Blue List" is: "Can cotton-seed oil be used advantageously for any pharmaceutical purposes?" Mr. Elborne stated, in reply, on the authority of an eminent therapeutist, that after a prolonged trial of it as a substitute for olive oil in ointments, liniments, and other applications for external use, its use has been abandoned, because in some cases it produced decided irritant effects. He submitted samples of preparations.

The Pronunciation of Pharmacognosy.—Harking back to the "Blue List," Mr. Elborne said that it suggested a short prosody for purposes of reference. He does not propose to compile one; but called the attention of the meeting to a word of Greek origin in current use signifying a scientific knowledge of the whole organic materia medica—pharmacognosy. It is usually pronounced pharmacog'nosy ("g" hard and accented), whereas the opinion of scholars is that it should be pronounced always with the "g" silent—pharmacog'nosy or pharmacogno'sy (accent either on the first "o" or the second).

Instead of reading these notes, Mr. ELBORNE submitted the results in his usual characteristic style; and, when he approached the pronunciation of "pharmacognosy," he caused considerable laughter by the quaint manner in which he referred to the subject, especially the emphasis which he put upon the final syllables, "nosey"; and he had to confess to the meeting that he did not see where the joke came in, but the President charitably explained the matter to him.

DISCUSSION.

The PRESIDENT said they would all take cognisance of the proper way in which to pronounce pharmacog'nosey—(laughter)—and he thought it was quite right that they should recognise perfection with respect to all matters connected with pharmacy.

Mr. A. H. ALLEN remarked that they should be careful of what they did in this matter of pronunciation. There was a paper coming on by-and-by about what he preferred to call pyro zylene, but which many people—indeed, nearly all chemists—called pyroxylin. In the same way he spoke of hæmato-zyline although hematoxyline was how most people pronounced it. It was an error to suppose that our language was made in Germany, and quite a mistake to allow it to be Germanised. (Laughter.)

Mr. ROBERT WRIGHT did not think that these notes were open to discussion, because he observed that Mr. Elborne was an F.C.S., therefore qualified to speak upon potassa sulphurata; he was an F.L.S., therefore competent to speak about such a botanical subject as cotton-seed oil; and as he was a B.A. he ought to know all about Greek derivatives. (Laughter.)

Mr. FARR said that as an unfortunate individual who had sometimes to use potassa sulphurata the paper interested him. He did not agree that the black precipitate referred to was carbon; he had tested it and his experience was that it was sulphide of iron. There might be a little carbon, but it was principally sulphide of iron. (Hear, hear.)

Mr. WARDLEWORTH pointed out that there were two methods by which the cotton-seed oil was prepared, and probably the difference in the action was due to some want of care in manufacture. Some of the oil was prepared from

the decorticated seed, while others were made from the entire seed, and probably the latter would contain some principle which would irritate the skin.

Mr. ABRAHAM asked the author if he had tested the samples of cotton-seed oil for acidity.

Mr. GROVES remarked, in reference to the note on pronunciation, that it was a question whether he pronounced these words according to etymology or English custom. He thought pyroxylin should be pronounced pyroxylin on the latter principle; but he hoped that some day someone, such as Mr. Ince, would compile a revised list for doubtful words.

Mr. CARTEIGHE said that the word pharmaceutical had been definitely decided by authority to be pronounced according to the English way. He was very much surprised to hear a gentleman on the previous day pronounce the word "centimetre" as "centimaitre." He considered that that pronunciation was quite pedantic, and they ought to stick to the one English style when they took words from other languages, and not make a half-and-half sort of thing.

The PRESIDENT here remarked that the note on potassa sulphurata was an important one, to which the Pharmacopœia Committee would have to pay attention.

Mr. SEEBOLD asked the author how he proved the presence of carbon and how he tested it, for his impression was that it could not possibly be carbon. (Hear, hear.)

Mr. TYLER said that Mr. Farr had hit the point exactly. The black precipitate was, in his experience, sulphide of iron. He said further that, as prepared economically on a large scale, they have to make it in iron vessels, and that is where the contamination comes from. As to the colour, he had never seen the preparation so dark as the darkest sample Mr. Elborne showed. Commercial carbonates of potash were used in making the preparation, and not salts of tartar, because the large percentage of moisture in the latter was a disadvantage to the result and helped to give rise to secondary products, the presence of which was objectionable.

The PRESIDENT remarked that the irritating properties of cotton-seed oil might be due to cruciferous seeds having got mixed with the cotton-seeds. He also spoke favourably of the suitability of sesame oil as a substitute for olive oil, and remarked that it was largely used in hospitals.

Mr. E. SAVILLE PECK (Cambridge) said that he quite agreed with Mr. Carteighe's dictum in respect to pronunciation of words derived from other languages.

Mr. ELBORNE replied that the personal equation came into this matter of pronunciation, but on the whole he agreed with what Mr. Carteighe said. He had not examined the acidity of cotton-seed oil. As to the black precipitate in the sulphurated-potash solution, he explained that he had heated it upon platinum, and it had burnt off, but he did not deny that there was iron in it, as well as carbon.

The next paper read was on

FORMALDEHYDE.

By F. C. J. Bird.

Formaldehyde is an exceedingly powerful antiseptic, and at first sight appears to be one which should prove exceptionally valuable in certain pharmaceutical operations on account of its intense germicidal action, the absence of odour or taste in dilute solution, its non-poisonous nature, and its volatility. It has been stated that milk may be preserved by formaldehyde, and the antiseptic subsequently driven off on boiling or cooking the milk, and this statement suggests a practicable process for the preparation of liquid extracts, such as ergot, by repercolation with cold water. The difficulty of preventing the ergot liquors from turning sour when working in any but the coldest weather presents an almost insuperable obstacle to the adoption of this method on the large scale, and it was thought that by the use of formaldehyde the ergot percolates might be kept sweet and the antiseptic finally removed by the application of a moderate temperature at the end of the operation. To my disappointment, however, I found that formaldehyde is retained by aqueous liquids with the greatest pertinacity, and it is almost impossible to effect the removal of the last traces. The following example will illustrate this:—

I. Forty fl. oz water, containing 80 minims formaldehyde solution (=1 in 600), was heated to 200° F. in a water-bath

at intervals during four days, until the volume was reduced to 10 fl. oz. Tested from time to time it always gave

Inf. Sennæ B.P.

—	I.	II.	III.	IV.	V.
2nd day	Slightly de-composed	Unchanged	Unchanged	Unchanged	Unchanged
3rd "	Sour and putrid	Slightly de-composed	"	"	"
4th "	"	Sour	"	Sour	"
5th "	"	"	"	"	Slightly mouldy, No putrid odour
6th "	"	"	"	"	Mould on surface increased
7th "	"	"	Slight de-composition. No mould	"	Very mouldy, but not sour

Inf. Calumbæ B.P.

—	I.	II.	III.	IV.	V.
2nd day	Unchanged	Unchanged	Unchanged	Unchanged	Unchanged
3rd "	Slightly de-composed	"	"	"	"
4th "	Sour	"	"	"	"
5th "	"	Slightly mouldy	"	Mouldy	Mouldy on surface
6th "	"	Decomposition commenced	"	Slightly de-composed	Mould increased
7th "	Putrid	Sour	Very slight decomposition	Sour	Odour mouldy, but otherwise unchanged

Inf. Gentian Co B.P.

—	I.	II.	III.	IV.	V.
2nd day	Unchanged	Unchanged	Unchanged	Unchanged	Unchanged
3rd "	Decomposition commenced	"	"	"	"
4th "	Sour	"	"	"	"
5th "	"	A little mould on surface	"	A little mould on surface	"
6th "	"	Mould increased	"	Mould very much increased	"
7th "	"	Sour	"	Very mouldy and sour	Mouldy

Inf. Ergotæ B.P., made with cold water.

—	I.	II.	III.	IV.	V.
2nd day	Decomposed and putrid	Unchanged	Unchanged	Unchanged	Unchanged
3rd "	"	Slight decomposition. No putrid odour	"	"	"
4th "	"	Mouldy	"	Slightly de-composed and mouldy	"
5th "	"	Mouldy and sour	"	Mould increased	"
6th "	"	"	"	Mouldy and sour	Mouldy on surface, but not sour
7th "	"	Putrid	"	Putrid	Mould increased

abundant evidence of the presence of formaldehyde, and on gently warming the residue the characteristic odour became distinctly perceptible.

II. One hundred cubic centimetres distilled water, con-

taining 1 minim of solution of formaldehyde (about 1 in 3,800), were rapidly boiled down to 40 c.c. The residue still reacted strongly for formaldehyde.

III. One hundred cubic centimetres water, containing $\frac{1}{10}$ minim formaldehyde solution (=1 of formaldehyde in 38,000), were distilled, and the distillate collected in fractions of 5 c.c., each fraction being tested with Nessler's reagent.

Fractions 1 to 7 gave a brownish-yellow opalescence, changing to copious orange precipitate, which gradually became yellow, and finally blackened.

Fractions 8 to 16, a yellow precipitate, which darkened on standing.

Distillation was now stopped, and the 20 c.c. remaining in the retort tested. A distinct yellow precipitate fell, indicating that the liquid still contained formaldehyde. These facts will evidently have to be taken into account in any quantitative process dependent on the distillation of mixtures containing formaldehyde.

If used as a preservative for infusions, &c., the small proportion necessary does not affect either the taste or flavour of the liquid—an important advantage when contrasted with chloroform. The following table gives the results of a trial of its antiseptic powers on four of the Pharmacopœia infusions.

The Roman numerals represent five series of samples (each measuring 10 fl. oz.), which were treated as follows:—

I. No addition.

II. Vapour from 1 minim formaldehyde solution.

III. Vapour from 5 minims formaldehyde solution.

IV. One minim formaldehyde solution added to the infusion.

V. Five minims formaldehyde solution added to the infusion.

The infusions were kept in corked bottles exposed to most trying conditions of temperature, the thermometer registering from 70° to 80° F. during the whole week.

The vapour of formaldehyde was applied to the infusions referred to in columns II. and III. by passing a fine wire through the cork of the bottle and attaching to its extremity a tuft of cotton-wool moistened with either 1 or 5 minims of formaldehyde solution, as the case might be. Each bottle was opened daily, and a small quantity of the contents poured out.

On contrasting columns II. and III. with the corresponding ones IV. and V. it will be noticed that putrescence is either retarded or prevented altogether by the antiseptic; but in the former case, in which the vapour is employed, mouldiness is either slight in amount or absent; whilst in the latter, in which the antiseptic is added directly to the infusion, the growth of mould is very conspicuous and advances rapidly. This confirms previous observation that bacteria and pathogenic organisms succumb easily to the influence of formaldehyde, and moulds are very resistant to its inhibitory action. The use of formalin vapour has the further advantage that much less of the antiseptic actually remains in the infusion, for at the end of a week the cotton-wool still retains a strong formaldehyde odour. The vapour diffused from the cotton-wool probably forms a thin film of liquid on the surface sufficiently charged with formaldehyde to prevent the growth of mould, whilst the infusion beneath contains little or none. It is evident from the above table that 1 minim of formaldehyde solution on cotton-wool suspended above the liquid will preserve an infusion for two or three days under the most adverse conditions, and that 5 minims will keep it for a week or more. Under more favourable circumstances, such as exist in most pharmacies, the samples would have kept good for a much longer period. I regard the experiment with ergot as a most severe test, for a cold aqueous infusion of that drug is perhaps more easily putrescible than any other liquid with which the laboratory operator has to deal. This use of formaldehyde in this manner as a preservative for infusions appears to be quite free from objection.

The influence of formaldehyde on vegetable colours as well as illustrated in the following experiment:—Two samples of infusions of rose-petals were set aside, one containing $\frac{1}{10}$ minim formaldehyde solution per fluid oz. and the other without any addition. After six weeks they were examined. Both were covered with a thick layer of mould: in the one containing formaldehyde the colour was un-

changed; in the other it had been completely destroyed by the growth of fermentative bacteria.

DISCUSSION.

11.53. The PRESIDENT, in opening the discussion, referred to the action of formaldehyde in the preservation of milk, for which he had heard it was extremely effective. He also reminded the meeting that formaldehyde formed an insoluble compound with gelatine.

Mr. MARTIN said the paper was one of especial interest, and gave a great deal of information that was useful to pharmacists. Under the name of formalin, which was a 40-per-cent. solution of formaldehyde, it had acquired some reputation, but he did not think that pharmacists could use it in infusions, &c., without authority.

Mr. BIRD, in reply to a question by Mr. Martin, here stated that it was the air-space above infusions contained in bottles that was saturated with the formaldehyde vapour.

Mr. DRUCE asked if the antiseptic would be of any use for preserving botanical specimens. Many flowers faded when preserved, but some time ago he had got a tip from the Berlin Museum Association, which was to dip the specimen in a mixture of 2 parts of sulphurous acid and 1 part of methylic alcohol until the colours of the flowers were bleached. Then, on drying the specimens, the natural colours were gradually brought back with exposure to the air. He had found some specimens of *Orchis mascula* kept specially well by that method.

Dr. SYMES explained that if formaldehyde was added sufficiently diluted to gelatine there was no precipitation, and in his experience such a small addition was very effective in preserving solutions.

Mr. UMNEY stated that he had found formaldehyde distinctly useful for the preservation of such syrups or syrupy liquids as lemon and lime-juice cordial. It was much better than sulphurous acid.

Mr. ELBORNE informed the meeting that solutions of formaldehyde were used in the University College Hospital, London, for preserving anatomical specimens, especially brains—(laughter)—and it was very successful.

Mr. DRUCE here asked if it was the formic aldehyde introduced by the bee into the cell of the honeycomb which kept the honey fluid.

Mr. ELBORNE, again rising, said that he had not finished. What he wished to say was that formaldehyde was a reagent for tannin, as it formed a delicate white precipitate.

Mr. E. SAVILLE PECK said that perhaps the reason why Mr. Druce's preservative mixture of sulphurous acid and methylic alcohol preserved the flowers was that some formaldehyde was formed.

Mr. E. J. PARRY corroborated what Mr. Bird had said in regard to the difficulty of driving off formaldehyde by evaporation. The reason for that was that the heating polymerised some of the reagent, and changed it into trioxymethylene. Mr. Parry referred to the utilisation of the formal gelatine for making P.O.P. paper, which was introduced into this country by Zimmermann from the Schering factory. He spoke very highly of it, and proceeded to refer to Mr. Elborne's remarks regarding reaction with tannin, explaining that tannin was a reagent for formaldehyde, and many other bodies possess the same property in precipitating it white. Mr. Parry also pointed out that Mr. Peck's suggestion was not at all a likely explanation of the efficacy of Mr. Druce's solution, because sulphurous acid and methylic alcohol would not react as he suggested.

Mr. SIEBOLD corroborated that observation, and speaking in regard to the preservation of colours of plants explained that the effect had been proved to be due to the action of the ammonia in the air, and that if the flowers were dried in paper saturated with oxalic acid they were beautifully preserved.

Mr. ALLEN said he was in the habit of using formaldehyde in small quantities for the preservation of milk intended for analysis, but they had to be careful not to use much, otherwise it would be counted along with the total solids.

Mr. MACEWAN remarked that the point of greatest interest in Mr. Bird's paper was that for pharmaceutical purposes formaldehyde in vapour was more effective than solution. In that connection he referred to the fact that in Germany kieselguhr tablets saturated with formaldehyde are used for placing in coffins to preserve bodies, and he

suggested that anatomical laboratories should try that method where possible. He also referred to the fact that a combination of gelatine with formaldehyde has recently been introduced in the form of powder as an antiseptic application to wounds, or as an iodoform substitute.

Mr. COULL said that he had been much interested in what Mr. Elborne had said regarding formaldehyde being used as a preservative for brains, and particularly wished to know if its action was specific or local, because if the former, perhaps the Conference would be able to decide what was the medicinal dose, so that some of the members would be able to take some of it that evening. (Great laughter.)

The PRESIDENT, in calling upon Mr. Bird to reply, said that undoubtedly formaldehyde had been more used in Germany than in this country.

Mr. BIRD showed a sample of glutol, to which Mr. MacEwan had referred. It was made by the action of 25 minims of formalin on 1 lb. of gelatine. When this powder was brought into contact with living tissues it gave off formaldehyde. Generally, he said, formaldehyde is not so active in solution as it is in vapour, and replying to Mr. Druce he stated that Mr. E. M. Holmes has already used the antiseptic for preserving plants, and had presented the results of his experience to the Museum Association about six months ago. The speaker's experience with the use of it in citric-acid solution was not quite so favourable as Mr. Umney, for he found that it did not prevent the formation of the higher moulds. He was not a naturalist, although his name might make them think so—(laughter)—so that he was not able to reply to the bee question. He also called attention to several specimens which he exhibited, and again said that he considered the antiseptic solution to be superior to chloroform, and it does not communicate its taste and odour to the thing to which it is added. It was also excellent for preserving meat and milk. He had found that two or three drops of formalin added to a pint or a pint and a half of milk kept it perfectly fresh for three or four days, and if five drops were put into a dish of fresh meat, and the cover then put over it, it preserved it perfectly for five days. He felt sure that as the properties of formalin became known they would find much use for it in pharmaceutical practice.

PODOPHYLLUM EMODI.

At this stage Mr. FRANCIS RANSOM exhibited samples of *Podophyllum Emodi* and *P. peltatum* which Mr. Richard Reynolds, of Leeds, had grown in his own garden, and which he sent because he had referred to them on Mr. J. C. Umney's paper at the Edinburgh Conference. In June the *P. Emodi* leaves were of a rich bronze colour, which contrasted strikingly with the bright green leaves of *P. peltatum*. A specimen of *Hamamelis virginica* was also exhibited, which was grown in the same garden.

Mr. UMNEY remarked that Professor Dunstan was now investigating the chemistry of *P. emodi* at the Imperial Institute Research Laboratories.

12.18. Mr. NAYLOR next read the following paper:—

NOTES ON PYROXYLIN.

By Charles T. Tyrer, F.C.S.

In conducting a considerable number of experiments in the manufacture of pyroxylin on a large scale, it was found that most of the formulæ given in text-books were either unreliable or were wanting in precise directions. The B.P. formula, whilst producing a very soluble pyroxylin if properly worked, is unfortunately lacking in details of such preciseness as to enable one to achieve this good result without preliminary experiment. A minute proportion of moisture in the cotton-wool used (from a freshly-opened parcel gave 46 per cent. moisture) will alter results, as it dilutes the acid in actual contact with the fibre, causing a rise in temperature; variation in temperature of the mixed acids, time of exposure to action of acids, method of washing—all have their effect on the finished product.

Of the following experiments No. 1 undoubtedly yields a very good and soluble pyroxylin. The yield, however, is not what might be expected from theory. Products approaching theory are generally very badly soluble if quantities of solvent approaching B.P. are taken. The following formula gives a fair yield (although, like the B.P., it does

not work in larger batches) and a good solution, the resulting collodion being somewhat less fluid than that of B.P.:—

Cotton-wool 200 gr.
Ac. sulph. 1.845 8 oz.
Ac. nit. 1.450 4 „
Water 1½ oz.
Temperature on mixing acids, then adding water, 162° F.
„ „ immersion, 150° F.
Time (40 secs. to immerse), 2 min. 20 secs.
Products, 278 gr.

The series of experiments with 5 oz. and 10 oz. of cotton-wool confirmed results of experiments on a large scale—viz., that for comparatively large amounts of cellulose the amount of mixed acids required is proportionately much larger than the amount used in small batches.

The following experiments were made to ascertain the best methods of construing the B.P. directions:—

	Dried Cotton-wool	Ac. Sulph. 1.845	Ac. Nitric. 1.420	Temperature on Mixing Acids	Temperature on Immersing Cotton	Duration of Immersion	Weight of Product
B.P.						min. secs.	
1	1 oz.	5 oz.	5 oz.	140° F.	140° F.	2 30	330 gr.
2	1 oz.	5 oz.	5 oz.	140° F.	130° F.	2 30	337 gr.
3	1 oz.	5 oz.	5 oz.	140° F.	120° F.	2 30	450 gr.
4	1 oz.	5 oz.	5 oz.	140° F.	140° F.	3 0	—
5	1 oz.	5 oz.	5 oz.	140° F.	140° F.	2 0	357 gr.
6	1 oz.	5 oz.	5 oz.	140° F.	140° F.	1 30	375 gr.
7	1 oz.	10 oz.	5 oz.	150° F.	150° F.	0 50	1 oz. 130 gr.
8	5 oz.	25 oz.	25 oz.	140° F.	140° F.	6 30	2 oz. 327 gr.
9	5 oz.	30 oz.	30 oz.	140° F.	140° F.	3 30	254 gr.
10	5 oz.	35 oz.	35 oz.	140° F.	140° F.	3 30	oz. 229 gr.
11	10 oz.	50 oz.	50 oz.	140° F.	140° F.	—	—
12	1 oz.	5 oz.	5 oz.	140° F.	69° F.	3 0	330 gr.
13	1 oz.	5 oz.	5 oz.	140° F.	69° F.	3 0	437 gr.
U.S.P.		Ac. Sulph. 1.838	Ac. Nitric. 1.414				
	Grammes	C.c.	C.c.				Grammes
14	100	2,200	1,400	149° F.	90° F.	2 0	159
15	100	2,200	1,400	149° F.	90° F.	3 0	153
16	100	2,200	1,400	149° F.	90° F.	4 0	149
17	100	2,200	1,400	149° F.	80° F.	5 0	153

REMARKS.

1. A perfectly and quickly soluble article, making a limpid collodion.
2. Fairly soluble; not equal to No. 1; less limpid.
3. Not quite equal to No. 2. Collodion more glutinous than above.
4. Decomposition started at three minutes; violent ebullition and evolution of gas and steam.
5. Not very soluble.
6. Badly soluble.
7. About equal to No. 5.
8. Great tendency to decompose; not very soluble.
9. Great tendency to decompose; fairly soluble.
10. Great tendency to decompose; slightly better than No. 9.
11. Decomposition started at one minute.
12. Acids were mixed and allowed to stand for sixteen hours in open jar exposed to atmosphere; badly soluble.
13. Acids were mixed and allowed to stand for sixteen hours out of contact with atmosphere; slightly better.
14. Not very soluble.
15. Fairly soluble.
16. Equal to B.P., but resulting collodion more gelatinous.
17. Not very soluble; more than No. 14; No. 14 not equal to No. 15.

The cotton-wool, the best obtainable, gave no appreciable loss in weight after treatment with ether, and was well dried, picked, and carded just previous to use. The time taken to add the 1 cz. of cotton was 30 secs. to complete immersion. The time of immersion in these experiments is reckoned from moment of complete immersion. When sufficiently acted on by the acids the pyroxylin was put on a perforated porcelain dish and thoroughly and quickly pressed, then thrown in not less than 3 gallons of distilled water, and rapidly stirred, drained, again pressed and re-washed until the wash water was free from acidity and sulphates. If the pyroxylin is not pressed to remove the acid immediately on throwing into water a considerable portion passes into solution (which, however, is almost

immediately thrown out again in so finely divided a condition that it cannot be recovered), the dilution and consequent rise in temperature in acid in contact with fibre causing considerable action.

It does not seem advisable, however, to increase the size of the B.P. batches (certainly to not more than that of the U.S.P.), as pharmacists would not always have at hand the necessary vessels, and the risk is proportionately increased, both in the manufacture and drying. The best and safest drying temperature is 90° F., the pyroxylin being first pressed as dry as possible and picked. The U.S.P. form, as regards products, appears to be better than the B.P.; the pyroxylin is perfectly soluble, whilst its solution compared with B.P. is slightly more gelatinous, so that the collodion will bear some slight dilution.

If owing to bad washing and manipulation the pyroxylin contains acid, the risk of decomposition is materially increased during drying. With regard to preservation for any length of time, the safest and best plan is to moisten the dry cotton with an equal weight of S.V.M., and press into a well-stoppered jar. When required for use it is quickly and easily dried. The method of moistening with water (pyroxylin is often ordered thus) is unsatisfactory, as in a few months the water will give an acid reaction and the cotton a corresponding loss of solubility, and the chances of spontaneous decomposition are increased.

The author had rarely seen a sample of any make of pyroxylin which, if moistened with water and placed on a slip of litmus-paper on a watch-glass, did not redden the paper within six hours.

However soluble the pyroxylin may be, the collodion always deposits slightly on keeping. This deposit is a nitro-compound, probably of very low nitration.

He has found it to be soluble in pure dry amyl acetate, and in acetone, whilst benzol causes gelatinisation. The addition, however, of a small percentage of acetone or amyl acetate to the B.P. collodion does not prevent this deposit.

It should be remembered that there is no line of demarcation between the nitro celluloses, as bodies containing almost any percentage of nitrogen between the highest and lowest limits may be produced, depending on the conditions under which the nitration is carried out. One of the main difficulties in defining the results of analysis of pyroxylin is that a mixture of soluble nitro-celluloses is always formed, it being very doubtful if any one compound has been isolated in a state of purity. Indeed, whilst manufactured under apparently identical conditions, so slight are the causes of variation that two samples of pyroxylin scarcely ever give exactly the same amount of nitrogen.

For the determination of the nitrogen contained in the nitro-cellulose that of heating the same with sulphuric acid and mercury, as in Crum's process for the estimation of nitrates in water, conducted in the nitrometer (Allen, vol. i., p. 327, 1885 edition), was used.

The pyroxylin made according to experiment No 1 gave 11.27 per cent. nitrogen; this corresponds most nearly to tetra-nitro cellulose. This result agrees with Allen, who gives the formula of mono-nitro cellulose $C_6H_7(NO_2)O_5$, and that of the pyroxylin of the B.P. as $C_6H_5(NO_2)_3O_3$ or $C_{12}H_{15}(NO_2)_2O_{10}$, the latter being correct on the assumption that the investigations of Eder on cellulose are correct. The variations in results of analysis of different investigations are due to the presence of varying quantities of the lower nitro-compound in admixture.

DISCUSSION.

The PRESIDENT remarked that the preparation of a soluble pyroxylin and limpid collodion was a matter of considerable pharmaceutical as well as photographic interest.

Mr. THOMAS TYLER wished it to be known that he was not the Mr. Tyrer who communicated the papers, but his son, Mr. C. T. Tyrer, and he added that he had had nothing to do with the investigation. He thought that the results were all right, and quoted from a letter which he had received from Mr. McNab, an authority on explosives, which corroborated the conclusions arrived at in the paper.

Mr. Tyrer, jun., was then heartily thanked for his communication, and the next one was taken, which was read by the author, viz.:—

BAEL-FRUIT AND ITS PREPARATIONS.

By A. C. Abraham, F.I.C.

Among the many preparations of the Pharmacopœia there are, perhaps, few which have caused the writer more trouble and perplexity than the fluid extract of bael. Bael has, after a long trial in this country, been condemned and scarcely worthy of consideration or further trial, unless it was in the form of a preparation of the fresh fruit. Some such idea as this was seemingly held by the Pharmacopœia Committee, which reported in May, 1895, in favour of omitting the fluid extract of bael from the new Pharmacopœia. The author hoped, however, to show that bael has not had a fair official trial in this country, and that its inefficiency is due to a bad preparation, for which the B.P. is responsible primarily. It is the pulp inside the fruit which has medicinal activity. The common statement that bael is an astringent, and the definite statement of one writer at least that the active principle is a variety of tannin, have led many to a quite opposite conclusion. The latter view seems also to be held by many manufacturers, as is shown by the low extractives and low specific gravities in the table.

Bael fruit is recognised in the British Pharmacopœia alone of European Pharmacopœias. The literature of the drug is not extensive, but the fact that in the one foreign formula the menstruum is a mixture of equal parts of alcohol and water sufficiently accounts to the author for non-recognition of the drug on the Continent. As to the B.P. preparation, the author thought the formula had been devised by someone who knew how to make it efficient, but did not think it necessary to go into details. The Pharmacopœia directs 1 lb. of bael to be macerated for twenty-four hours in 4 pints of distilled water; but the bael is not ordered to be bruised, and it also seems to be the intention that the pulp should be excluded. Then the maceration is directed to be repeated twice and the marc bruised, the latter being, in the author's opinion, an absurd instruction, and this fact strongly pointed to the conclusion that the instructions to bruise the drug have been omitted. He also pointed out that the medium through which the liquors are to be filtered before evaporation is not mentioned. The formula, he stated incidentally, was first introduced in the 1864 B.P., and remains the same except that the 1885 B.P. increased the spirit from 2 to 3 fl. oz. He could not say from his laboratory notebooks that with a smaller quantity of spirit no separation took place, but there is certainly now a considerable separation. His distinct impression, however, was that the smaller quantity of spirit was no doubt employed to avoid the rejection of gelatinous matter, but even before the spirit is added this separation does take place. As to filtration, his practice had been always the same, but he was in the habit of filtering when there seemed to be a necessity for it. Some time ago a medical friend reported to him that while doses of 1 or 2 drachms of the pulp, separated by filtration, given thrice daily, checked chronic dysentery at once, the same doses of the fluid extract had no effect. He subsequently submitted for trial a confection containing all the matter that might be rejected by filtration, and this also was reported upon favourably; but the confection is such an awkward thing to make that the author recommended retention to the fluid-extract form without filtration, and he submitted the report of medical men testifying to its value in cases of dysentery, after ordinary astringents had failed to give relief. The process which he recommended was as follows:—

Pass 16 lbs. of bael through a coarse cane sieve ($\frac{3}{8}$ -in. holes). Macerate all day in 8 gallons of distilled water, and at night put into flannel bags. In the morning again mix with 8 gallons distilled water, and in two hours return to bags previously washed. Repeat this at night, evaporate *secundum artem* in a water-bath, or *in vacuo* at a still lower temperature to 14 lbs. Cool, make up to 200 fl. oz., add 48 fl. oz. of rectified spirit gradually, and label "Shake the Bottle."

This is essentially the formula of the present B.P. with the doubtful points specifically cleared up, and the product keeps well, is pleasant to take, and thoroughly active. If the maceration and filtration through flannel bags is carefully conducted, pressing is not necessary,

and if it can be shown that the mucilaginous matter contained chiefly in the rind of the fruit is, as well as the pectinous matter surrounding the seeds, active, it would be desirable to exclude it as it thickens the product. Although it is stated that the increased quantity of spirit does not prevent fermentation, the author's experience is that it is when the process is carefully conducted. Before submitting the sub-joined table the author stated that several Liverpool physicians regard bael-fruit as a drug possessing unique and valuable properties.

	Sp. Gr.	Gr. Extractive per 3j.	Colour
1	1.125	21.8	Dark
2	1.068	14.4	Light
3	1.083	15.7	Dark
4	1.044	11.0	Light
5	1.030	7.7	Light
6	1.126	—	Not filtered
7	1.137	—	Filtered
8	1.095	—	Filtered
9	1.085	—	Filtered

Sample 1 the author stated he recommended. Sample 2 was obtained from a leading London firm, who, he thought, made it themselves. He believed the great variation in 4 and 5, both as to solid content and colour, was accounted for by their age, as on keeping much of the mucilaginous matter was deposited, and for that reason he considered the preparation should be used as fresh as possible.

DISCUSSION.

12.40. The PRESIDENT explained that there was very little demand for preparations in England now. It was chiefly used in India, where it was also used as a laxative. The curious part about it was that Hanbury stated that in the fresh condition the fruit contains no tannin—at least, did not react with iron salts. What the astringency was due to he could not say; perhaps it was to the mucilaginous matter which Mr. Abraham referred to.

Mr. CROSS said it was refreshing to him to hear the paper, because it took him back twenty years, when he was in the habit of making three preparations of bael—one, liquor bælæ, by smashing the fruit, macerating it in cold water, and evaporating the liquor; the second, liquid extract, made from the whole fruit; and the third, a confection, which was made from the sugar-preserved fresh fruit, and put up in jam jars—a most delightful preparation it was. The fluid extract was sent to the Continent, but it was not now in demand.

Mr. ABRAHAM then replied, stating that he had not absolutely tested the fruit for tannin, but noticed that iron vessels had no effect on it.

2 45. The last paper read before the adjournment was on

LIQUOR AURI ET ARSENII BROMATUS.

By R. Wright, F.C.S., Pbar. Chem.

This is a remedy that is now extensively employed in the treatment of rheumatoid arthritis, and the author has had exceptional experience in its preparation. He brought the subject before the Conference, and particularly under the notice of the Formulary Committee, because the existing formulæ are not altogether satisfactory, yielding products which differ materially in strength and composition, and for remedies of great potency it is highly desirable that an authoritative formula should be published for the guidance of medical men and pharmacists. Clemens's solution is the starting-point in preparing the liquor. The original formula for this solution is as follows:—

Arsenious acid	80 gr.
Potassium carbonate	80 "
Bromine	160 "
Distilled water	15½ oz.

Boil the potassium carbonate and arsenious acid with most of the water until dissolved; add the bromine and water enough to make the prescribed quantity.

Dose: 1 to 4 minims (= to $\frac{1}{10}$ to $\frac{1}{24}$ gr. of arsenious acid).

The preparation contains an excess of bromine, so that it is recommended to be kept in a warm place until it is

decolorised. The process is too lengthy for every-day use, because it takes several weeks before the whole of the bromine is fixed. Fairthorn's process consists in the production of arsenium tribromide by the interaction of the two elements, and making from the compound an aqueous solution, each minim of which contains $\frac{1}{32}$ gr. of the tribromide. As arsenium tribromide is decomposed by water with the formation of hydrobromic and arsenious acids, the first edition of the "National Formulary" gave a formula with the ingredients so adjusted in preparation as to yield the acids in combination as salts of potassium. Squire gives the formula ("Companion," page 108). The author then quoted the "Extra Pharmacopœia" formula for liquor auri et arsenii bromidi. It is a mixture of Clemen's solution 192 minims and bromide of gold $1\frac{1}{2}$ gr. in sufficient distilled water to make 1 fl. oz. Mr. Wright objected to it because it is first necessary to make Clemen's solution, and also because of the difficulty in obtaining soluble bromide of gold. He submitted the following as a reliable working formula:—

Arsenious acid (in powder)	40 gr.
Potassium carbonate	40 "
Bromine	100 "
Gold (in leaf)	135 "
Distilled water	sufficient for 1 pint

Place the arsenious acid and potassium carbonate with 4 oz. of the water in a flask, and boil until solution is complete. Weigh out the gold-leaf and place in a wide-mouthed bottle, add 12 oz. of distilled water, then run in the bromine, and shake until the latter is dissolved. Add the solution previously made and shake for a few seconds. Transfer to a flask or retort, and boil until bromine fumes cease to be given off. Allow to cool, dilute with distilled water to 1 pint, filter.

Distilled water alone should be employed, as the arsenium compounds formed precipitate lime and magnesia, existing in tap-water.

A small quantity of insoluble matter is left upon the filter. This has been examined upon several occasions and found to be silver chloride, derived from traces of impurities in the gold and bromine employed. The amount is infinitesimal. The usual dose of this preparation is from 5 to 10 minims. The maximum dose contains an amount of arsenium in combination equal to $\frac{1}{16}$ gr. and of gold tribromide $\frac{1}{32}$ gr. The author has employed the process for some time past, and with

perfectly satisfactory results. It is simple, speedy, and economical, and the ingredients required may be found ready to hand in almost any good pharmacy.

DISCUSSION.

12 55. The PRESIDENT remarked that there might be something to be said for making the preparation at home, but it made a stink. The liquor was an imitation of an American nostrum, for which a formula had been published by a medical man; but when he came to try it he found that it would not work, so he devised the formula which was given in the Extra Pharmacopœia, and which in his hands worked well.

Mr. CONROY said there was something very delightful in all the papers brought before the Conference by Mr. Wright—(applause)—they came to a practical issue. (Hear, hear.) It struck him that the process recommended was an excellent one. The American proprietary formula was a mere blend. (Hear, hear.) He had tried it, found it fail, then resorted to the "Extra Pharmacopœia" method. He thought Mr. Wright's formula was an improvement.

Mr. MARTIN said there was some small demand for the liquor now, and he considered the formula a very valuable and useful one; but if distilled water had to be used in making it he questioned if it was suitable for retail pharmacies, because it was not often that aqua dest. was found there. ("Oh! oh!" and laughter.)

Mr. MACEWAN said that the new edition of the "National Formulary" contained a recipe for liquor arsenii et auri bromidi, the process being somewhat similar to Mr. Wright's, but differing from it in not containing alkali; and the arsenium was equal to $\frac{1}{16}$ gr. in 10 minims.

Mr. WRIGHT, in reply, said that he had not seen the new edition referred to, but pointed out that his solution was not alkaline.

Mr. MACEWAN explained that the formula contained carbonate of potash, but the American one did not, nor any other alkali.

Mr. WRIGHT, continuing, said that the alkali was fixed by the bromine, and probably existed as hypobromite or bromate.

The Conference then adjourned for luncheon.

FOURTH SESSION, WEDNESDAY AFTERNOON.

2.43 ON reassembling after lunch, the PRESIDENT said there was one short paper which, he dared say, some members would like to hear read, as it had a substantial bearing on practical pharmacy.

Mr. NAYLOR then read the following paper:—

ESSENCE OF RENNET.

By J. A. Forret.

A formula for a satisfactory essence of rennet must provide for a preparation that will pass through a filter within a reasonable time and produce a bright filtrate—that is, an infusion *not* of a glairy or ropy consistence—and, further, a finished article that will keep bright and sweet for a considerable time. The following formula is the result of experiment, and, provided the calves' stomachs are in proper condition, the resulting essence leaves nothing to be desired. As the stomachs vary in size and rennet value, it is desirable to treat three or more at a time. They should be dry and preserved with salt; the proper article is obtainable from any reliable butcher.

For three stomachs, take of—

	Oz.
Salt	15
Boric acid	$\frac{1}{2}$
Rectified spirit	15
Water	150

Open the stomachs and retain as much of the salt as will adhere to the inner surface; cut into small pieces and macerate for about an hour, with frequent stirring or shaking, in 50 oz. of water in which 5 oz. of salt is dissolved; strain through muslin, and repeat the maceration twice with the same quantity of brine; dissolve the boric acid in the mixed strained liquors, add the spirit, and filter.

Without the addition of some such medium as kaolin, filtration through paper is very slow, and the first few ounces

that pass must be returned. With about an ounce of kaolin or precipitated chalk diffused through the essence, and a double filter-paper, supported in the funnel by tow and moistened with water, filtration is fairly rapid, and only the first two or three drachms of filtrate is slightly turbid.

Prepared as above, the colour of the essence is objectionable; it varies from a very pale straw tint to what is practically colourless. For this I have found a simple remedy in merely bringing up the colour to a pronounced straw by the addition of a very small quantity of saffron.

One drachm of the essence is sufficient for a pint of milk, and, if stored in full and well-corked bottles, a fairly firm curd will be produced by the same quantity, though the rennet be ten or twelve months old.

By re-maceration sufficient exhaustion is effected in a few hours, and this seems to be the principal factor in producing a preparation free from "ropiness."

DISCUSSION.

The PRESIDENT said that unfortunately Mr. Forret was not present. The paper was of considerable interest to pharmacists who had to make such a preparation—*i.e.*, to get a preparation of rennet that was bright, clear, and active. He thought the great point about his preparation was to use the dried rennet. Dried rennet undoubtedly preserved the curdling ferment for a considerable time. It was not like the amylolytic or the zymic ferment. The point was that, if made from such a preparation, it filtered readily.

Mr. UMNEY said he had recently had occasion to filter some essence of rennet which was dark coloured, and he used animal charcoal, but it made the essence quite useless, the charcoal absorbing the ferment in the same way that it did pepsin.

The PRESIDENT agreed that it would be quite useless. In making essence of rennet, he said, the main point was that when they had made it they had to test it, and every stomach that was used wanted separate testing. A number of stomachs were inactive when they were obtained from the slaughter-house, and unless each one was tested as regarded its activity, they were apt to get a very ineffective preparation. But in this preparation the dried rennet was quite as active as that from the calf's stomach.

Mr. GROVES said the difficulty of filtration was got over in many cases by using a proper paper.

Mr. ROBERT BRODIE (Glasgow) said that in preparing vinum pepsinæ direct from the stomach of the calf he had found it difficult to filter, but by adding kaolin he got a nice preparation. It now occurred to him that probably the kaolin may have taken out some of the active principle. Was that so?

The PRESIDENT replied only a small trace, and moved a vote of thanks to Mr. Forret for his paper, observing that he agreed with the author that the dried rennet removed a good deal of difficulty in regard to filtration.

250. Mr. NAYLOR then read a paper on

THE EFFECT OF SOLVENTS ON THE ANALYTICAL CHARACTERS OF GINGER.

By J. F. Liverseege, F.I.C.

When examining spent gingers, the author found that the ratios of the constituents showed very great differences; for example, three samples of spent ginger gave—

	Per cent.	Per cent.	Per cent.
A. Soluble ash, 2; alcoholic extract, 1.1; cold-water extract, 8.4			
B. " " 5; " " 56; " " 74			
C. " " 6; " " 19; " " 60			

These results appeared to show that various strengths of spirit and water were used for exhausting the rhizome, and the following experiments were made to see what was the effect of four different solvents on a sample of ground ginger.

Several trade samples of ground ginger were mixed, and 25 grammes macerated for seven days in 100 c.c. of the liquid, with occasional shaking, and then filtered; the filtrates were evaporated to dryness, and the extract and ash weighed. All the extracts were pungent to the taste and irritant on heating. The residues on the filter were exposed to the air till dry, and then analysed by the following methods:—

Five grammes were dried at 100° C. and the loss put down as water; the residue was ignited and the ash weighed. In some cases the burning off of the carbon is facilitated by evaporating a little water on the ash, as it brings the carbon in closer contact with the platinum. The total ash was washed with hot water, the residue ignited and weighed, the loss in weight being the soluble ash. This determination is somewhat indefinite, as washing with large quantities of hot water fails to remove all the ash giving an alkaline reaction to methyl orange. It is better to boil the ash gently with 100 c.c. of water for five minutes, and filter, with only slight further washing. The filtrate was titrated with decinormal hydrochloric acid and methyl orange, and the alkalinity calculated as K₂O. The factor varies very much in genuine gingers, 0.3 to 1.5 per cent. having been found, though a high result probably indicates a genuine ginger. The ash insoluble in water was heated with hydrochloric acid, and the residue washed, ignited, and weighed.

Ethereal and alcoholic extracts were made by exhausting 5 grammes in a Soxhlet's apparatus for six hours with methylated ether, and then for twelve hours with methylated spirit; the exhausted residue, when dry, was macerated in 100 c.c. of water overnight and filtered. The extract in each case was dried at 100° C. till constant, or nearly so.

The cold-water extract was obtained by rubbing up 1 gramme of ginger with 50 c.c. of water, and macerating about forty hours in a corked flask, with occasional shaking. After filtration and slight washing the filtrate was evaporated and dried till constant. The 25 per cent. proof-spirit and methylated-spirit extracts were prepared in the same way with these solvents.

In the table below I. is the analysis of the original ginger, the others are the analytical results corrected from

the percentage of water found in the exhausted gingers to 12.3 per cent., so that the four sets of figures are directly comparable with the analysis of the original ginger. The solvents used were rectified spirit (II.), proof spirit (III.), 25-per-cent. proof spirit (IV.), and water (V.) [i.e., II. is a ginger which has been exhausted with rectified spirit, dried, and subjected to the above treatment.—ED.].

	I.	II.	III.	IV.	V.
*Ash soluble in water	2.4	2.2	1.7	1.1	1.0
Ash soluble in hydrochloric acid ..	1.8	2.1	1.8	1.5	1.4
Ash insoluble	7	7	8	9	9
Total ash	4.9	5.0	4.3	3.5	3.3
Alkalinity of soluble ash as K ₂ O ..	5	5	4	3	3
Ethereal extract	5.6	1.8	3.8	5.3	5.4
Alcoholic extract after ethereal ..	4.6	2.3	2.3	2.6	3.2
Aqueous extract after alcoholic ..	5.8	6.4	4.9	3.2	2.4
Cold-water extract	11.8	10.5	6.8	5.9	4.7
25-per-cent. proof-spirit extract ..	10.2	9.2	6.1	5.5	4.8
Methylated-spirit extract	6.5	2.9	4.5	5.8	5.6
Ginger dissolved (extract)	—	4.0	4.0	5.1	5.5
Ash dissolved	—	1	6	1.3	1.3
Water in air dry ginger	12.3	13.4	14.0	13.4	13.5

* All results except last line are on 100 parts, composed of 87.7 dry ginger and 12.3 parts water.

Water, it thus appears, dissolves the largest amount of solid matter and ash, and rectified spirit reduces the ethereal extract even more than the alcoholic, but removes very little mineral matter, and so produces a slight increase in the total ash by removal of soluble matters. The above figures also show the necessity of determining more than one constituent of the ginger—for example, No. II would be considered genuine if the figures for ethereal and alcoholic extracts had not been given, though actually a large part of the pungency had been removed by spirit. Probably the simplest way of determining whether a ginger is exhausted or not is to determine the cold-water and methylated-spirit extracts.

DISCUSSION.

The PRESIDENT explained that of recent years the ginger used in manufacturing gingerine, commonly called "spent ginger," had come into the market for the purpose of saving a few coppers, but he thought that the pharmacists were above having anything to do with that sort of stuff.

Mr. WRIGHT said that tests of the kind described in the paper were of very little use unless they knew what the extractive was which was left behind.

The PRESIDENT: Bleached ginger, as sold by grocers, is very good-looking stuff, but it has no virtue in it, and pharmacists, he was glad to say, had ceased to stock it.

Mr. NAYLOR said he had found difficulty in telling whether a ginger was spent or not—(hear, hear)—even when he had determined all the factors spoken of in the paper.

Mr. UMNEY corroborated, and explained that what was at the bottom of the difficulty was the different amounts of extractive matter in the various kinds of ginger. (Hear, hear)

255. Mr. RANSOM then read the following:—

CHINESE OPIUM.

By Frank Browne, F.C.S., Acting Government Analyst, Hong-Kong.

In a previous paper (THE CHEMIST AND DRUGGIST, xlvii., 854) the author has made some observations on the smoking-value of Chinese opium. Further testings have been made, and the results of two series of independent observations by experienced Chinese smokers are as follows:—

First Series.—The Chinese opium-extracts have a grassy taste, and are deficient in flavour and strength. Three parts of the Indian extract are equal, as regards the smoking effect, to five parts Kwei-Chou extract. Tanzin is weaker than Kwei-Chou, and Szechuen is the weakest.

Second Series.—The taste (flavour) of Kwei-Chou extract is much weaker than that of Patna, and the strength, as regards smoking effect, is one-half that of Patna. The taste of the Yunnan is weaker than that of Kwei-Chou, and its smoking effect is one-third that of Patna extract. In taste and smoking effect Szechuen extract differs little from Yunnan,

but the effect of smoking the Chinese varieties is the same as that of a proportional amount of Patna.

The conclusion from these observations is that the Chinese opiums are inferior in narcotising power when smoked, although at least two of them are stronger in morphine than Indian opium.

The PRESIDENT and Mr. MACÉWAN briefly commented upon the paper, the latter speaker pointing out that what opium-smokers wanted was flavour, not morphine, and this note once more proved that it was with opium just as it was with tobacco; one could not expect to get from a 3*d.* the oz black cavendish the flavour and satisfaction of a 1*6s.* the lb. Turkish tobacco. It was only the rich people of China who used Indian opium, just as well-to-do people with us used the finest tobaccos.

Mr. NAYLOR then read an abstract of the following paper:—

THE COMPOSITION OF DIPHTHERIA ANTITOXIN SERUM.

By Gordon Sharp, M.D.

The serum is slightly alkaline in reaction and smells of camphor. Of a bright-red colour at first, in the course of three months it loses its brightness and becomes dull brown in appearance. Its composition must vary according to the age of the serum. A serum recently prepared will contain less albumose than one which has been in bottle for some weeks, hence the analysis can only be held to be approximately correct.

The Proteids.—When magnesium sulphate is added to saturation a bulky precipitate of globulin is formed within two days. The globulin being filtered off the filtrate is neutralised, and a precipitate of alkali-albumin comes down slowly. This precipitate is filtered off, and to the filtrate a drop of dilute nitric acid is added giving a white cloud of albumoses (proteoses). This white cloud disappears on heating and returns on cooling, confirming the presence of albumoses. To a fresh portion of the solution (from which alkali-albumin has been removed) a drop of dilute nitric acid is added and the lower proteoses filtered off. The filtrate is treated with excess of sodium chloride when a dense white ring of deuto-albumose appears at the junction. Another portion of this solution on being treated with excess of sodium chloride after acidifying with acetic acid throws down a precipitate of proto and hetero albumose, and the filtrate treated with excess of ammonium sulphate gives a small amount of precipitate, which is deuto-albumose, and confirms the foregoing. After filtering off the deuto-albumose, the filtrate fails to give the pink biuret reaction, and no precipitate is obtained with hydrochloric acid solution of phosphotungstic acid, showing absence of true peptone. The precipitate of proto-albumose and hetero-albumose, just mentioned, is dissolved by adding water and the solution dialysed through parchment-paper for thirty-six hours, when almost no hetero-albumose was thrown out, showing that the bulk of the precipitate consists of proto-albumose. We find then globulins (much), alkali-albumin (much), proto-albumose, hetero-albumose (almost none), deuto-albumose (a trace); peptone is absent.

The Extractives.—Some of the serum dried and treated for twenty hours with rectified ethylic alcohol, and filtered again and again, and examined by the microscope, showed no characteristic crystals, and the solution treated with the ordinary reagents gave no sign of the presence of alkaloids. Strong sulphuric acid nor ferric chloride gave no reaction. Compared with other forms of digestion the above is interesting. Some years ago the author carried out some experiments on the digestion produced by papain, and by the ordinary putrefactive agents found in the air, the bodies acted on being egg and serum albumins. Papain gives with egg or serum albumin (globulin), proto-albumose and hetero-albumose (traces), deuto-albumose (abundance), dysalbumose (and undigested); no peptone, leucine and tyrosine. Putrefactive digestion gives with egg and serum albumins (globulin), unaltered albumin, alkali-albumin, proto-albumose, hetero-albumose (much), deuto-albumose (little), alkaloid and crystals; no peptone.

The Active Agent in Antitoxin Serum.—Guérin and Macé tried the serum with alcohol precipitating the albumoses, and then acted on the coagulated matter with distilled water and got a soluble substance which they believed to be

a ferment. The objection to this is that distilled water would redissolve the albumoses to some extent, and the soluble substance of Guérin and Macé may be nothing more or less than proteoses. However, they were not able to arrive at any definite conclusions. Hankin said: "It would lead me too far for me to attempt to detail the theoretical considerations that led me to suspect that a particular ferment-like proteid known as cell globulin β was the substance in question. At any rate, I tested its reaction on anthrax bacilli, and found that it possesses the power of destroying these microbes." But this cell globulin β is the substance described by Halliburton as being present in normal blood, which would make the blood of every animal antitoxic. Thus, it would appear as if the generally-accepted view was that antitoxin serum contained as its active agent something of the nature of a ferment. The following experiments were undertaken for the purpose of ascertaining if any such body could be demonstrated as being present. Reasoning by analogy, one would expect the ferment to be of the nature of a sugar-forming or diastatic ferment, for these occur in blood, chyle, the liver, and so on.

Tried serum with amygdalin at ordinary temperature. Tested for hydrocyanic acid, but found none and no smell of oil of bitter almonds to be detected. Another sample of amygdalin was tried at a temperature of 26° C, with a similar result. Zymine left with amygdalin at ordinary temperature produced a smell of oil of bitter almonds, and showed hydrocyanic acid after a day or two. These experiments were repeated with similar results.

Cane sugar was left in contact with antitoxin serum for twelve hours. No reduction of Fehling's solution on boiling for a few seconds, while a drop of solution of glucose added to the same reduced the Fehling's solution without further boiling. Hence the serum contains no ferment of the nature of invertin which converts saccharose into invert sugar.

Ferments like zymine increase the oxidation of solutions of resins (acting like hæmoglobin) in the presence of hydrogen peroxide. Serum antitoxin was treated with rectified spirit for some days so as to bring down all the proteids and ferments (if any). The whole was thrown on a filter and repeatedly washed for some days with rectified spirit. A portion of the filter was tried day by day with guaiacum resin and hydrogen peroxide. At first the resin was rendered blue, no doubt owing to the presence of hæmoglobin or some such body; but when the washings had been continued for a day or two, a stage was reached when no oxidation took place, while half a drop of blood at once struck a decided bluish-green colour. It could not have been that the alcohol had washed the ferment through the filter-paper, for we know that all ferments are rendered insoluble by alcohol. We can only conclude no ferment is present, or none at least which gives the ordinary reaction.

Amylopsin, or diastatic ferment, converts starch into maltose, and this latter body, although not so active as dextrose (as 66 is to 100), readily reduces Fehling's solution. The liver and chyle contain ferments of the kind mentioned, and if a ferment does exist in the serum one might not be expecting too much to look for it as one of this class. However, starch paste and antitoxin serum did not on digestion yield a sugar. The author detailed other experiments, with the view to find whether a ferment is present or not, but they all gave negative results, and although blood contains a ferment it is the fibrin-ferment, the cell-globulin β of Halliburton. The author contended that no ferment capable of reducing Fehling's solution, or of splitting up glucosides, or of digesting proteids can be demonstrated as being present in the antitoxin serum.

The author detailed additional experiments made with the view of confirming previous results, so far as proteids are concerned, and these again brought out the interesting fact that albumoses are present. He said it would be interesting to know if serum when newly drawn from the horse contains albumose. One would hardly think so, for the injection of so-called peptone (really albumose) into the circulation causes much constitutional disturbance. Whence the traces of albumose then? We know that serum changes colour, and we know that oxyhæmoglobin in the presence of alkalis is changed into hæmochromogen, and to this substance the changed colour of old serum may be due. In the same way serum albumin is readily acted upon by dilute

acids, alkalis, temperature, and pressure, and it may be that prolonged contact of the faint alkaline fluid has changed a small quantity of albumin into albumose even at a low temperature.

The PRESIDENT remarked that the paper dealt with a complex physiological and chemical problem, which they as pharmacists, could not discuss. (Hear, hear.)

This concluded the reading of papers.

THE UNOFFICIAL FORMULARY COMMITTEE.

Mr. COULL moved that the following gentlemen constitute the Unofficial Formulary Committee for next year:—W. Martindale, W. A. H. Naylor, A. C. Abraham, T. Greenish, T. B. Groves, T. Maben, N. H. Martin, F. Ransom, R. Reynolds, C. Symes, and R. Wright.

Mr. BIRD, in seconding the motion, said the names which had been read out were those of pharmaceutical experts, and he was sure that the formulæ could not be left in better hands.

The PRESIDENT, in putting the motion to the meeting, said he had been a member of the committee for some years, and a lot of the committee's work had been accepted by the British Pharmacopœia authorities as being satisfactory work that had stood the test of years. In their compilation of an appendix to the British Pharmacopœia, a few years ago, several of the formulæ that they had compiled were accepted as satisfactory for the use of pharmacists. Probably the same would occur again, and he thought that after the publication of the British Pharmacopœia they would find work to occupy them again. Cases arose requiring investigation, and expert pharmacists should take the matter in hand. He trusted that the rising generation would come forward, as a few of the present members were getting very rusty at the work. He himself had had pretty nearly forty years of hard work in pharmacy, and he felt that he was getting a little rusty. He should, therefore, be glad if some others would take a position on the committee when they really resumed active work in the way of approaching the preparation of the new formulæ. Young men ought to do the work. He had no doubt that in the course of a year or two they would devise a work which would meet with as satisfactory an acceptance as the last. He might say that their last work had been found, from a financial point of view, to be of very considerable profit to the Conference. It had run through three or four editions, whereas the work from which they borrowed the idea had only run through two editions, the second edition having been published during the last two months. Their work had met with general acceptance from pharmacists and the medical profession. (Cheers.)

The motion was unanimously agreed to.

THE BELL AND HILLS FUND—PRESENTATION OF BOOKS.

The PRESIDENT said that through the kindness of the late Mr. Thos. Hyde Hills, they were able to make a presentation, from what was known as the "Bell and Hills Fund," of books to the value of about 10%, to the chemists in each town in which they met from year to year. They had this year a series of seven volumes to present to the Liverpool Pharmaceutical Association. That was an old-established association, which had its location, he thought, in that building.

Mr. ABRAHAM: No sir; the Royal Institution.

The PRESIDENT continuing, said Mr. Conroy, the President, was unfortunately unable to be present, but they had Mr. A. C. Abraham there to receive the gift. The volumes consisted of the "Dictionary of Applied Chemistry" (Thorpe's three volumes), "The Natural History of Plants" (in two volumes), and the "Science Papers" and the "Pharmacographia," given by Mr. Thomas Hanbury—the two latter in addition to those given from the "Bell and Hills Fund." There was an old saying, that there were three things which were better for being old—old wood to burn, old books to read, and old friends to converse with. (Laughter.) As regarded pharmacy, however, old books would not do. They must be new books to be in request. The last new thing was what was required in pharmacy. They had an old friend in Mr. Abraham, and it afforded him great pleasure, in the name of the Conference, to make the presentation to the Liverpool Pharmaceutical Society, and he trusted that the books would be made use of. He had no doubt that "Thorpe's Dictionary" would be

a standard work for many years to come, and that it would be of great use to the students and members of the Liverpool Society. In the name of the Conference he asked their acceptance of the gift of books from the "Bell and Hills Fund," and of the two volumes from Mr. Thomas Hanbury in memory of his late brother, Mr. Daniel Hanbury. (Cheers.)

Mr. A. C. ABRAHAM, in accepting the gift on behalf of the Liverpool Society, said that he had great pleasure in doing so, in the absence of Mr. Conroy, the President. He could only assure the Conference that the books which were presented to them when the members met in Liverpool twenty-six years ago had been largely used and thoroughly appreciated, and he thought he could add that the books now presented would be equally well used, and probably more so. The Society received them with the greatest gratitude, and they would value them, not only because of their interest and value as books of reference, but because of the sources from which they came. It was difficult to say whether the name of "Hills" or "Hanbury" carried the greatest respect in their memories. (Cheers.)

NEXT YEAR'S CONFERENCE MEETING.

Mr. W. L. CURRIE (Glasgow) said that on behalf of the chemists of Glasgow and the West of Scotland he had been requested to come to Liverpool and invite the Conference to pay a visit to the second city of the Empire. (Laughter and cheers.) He had no hesitation in asking them to go to the second city, because if Liverpool claimed to be that city, then Glasgow claimed to be the first. (Renewed laughter.) They would not, however, quibble about the point, as it was a matter of very little moment as to which was the larger city. It was twenty years since the Conference visited Glasgow. That was a long cry back, and of those who were actively interested at that time many had passed away. He hardly need refer to the names of Daniel Fraser, who still was with them, he was glad to say; Mr. Alexander Kinninmont, who was also with them; the late Mr. Jack, and the late Mr. Fairley, all of whom took a very active part at that time. And amongst their company that day they were favoured with the oldest living pharmacist in active business in Glasgow—he referred to Mr. Robert Brodie. (Cheers.) He thought it would be considered unnecessary on his part to enlarge upon the beauties of Glasgow. (Laughter.) He did not intend to do it. But he should like to say that they had very many large and very costly public buildings. They far exceeded in beauty of architecture those of Liverpool. (Laughter.) They had very many beautiful public parks, and last, but not least, they had their romantic River Clyde. Dr. Symes, when inviting the Conference to visit Liverpool, at Bournemouth last year, mentioned as an inducement for the invitation being accepted that they would see miles of docks and miles of shipping. Well, if they went to Glasgow the people of that city would be able to show them miles of shipbuilding yards from which the miles of shipping came. (Laughter.) Not only so, but they might be able to arrange for a quarter-mile launch for their special delectation. He knew that in following a city like Liverpool the people of Glasgow would have a very arduous duty to perform. Be that as it might, Scotchmen were famous for putting their shoulders to the wheel, and if the Conference saw their way to accepting the invitation, he felt sure that their friends in Glasgow and the West Coast of Scotland would give them a hearty Scottish welcome. (Cheers.) He would not detain them by enlarging upon any more points, but merely say that he extended the invitation in the name of the chemists of Glasgow and the West Coast of Scotland, that the Conference should meet in their city next year. The Chairman of the Local Committee—who had already been appointed—was very sorry he was unable to be present: he referred to Mr. McAdam, of Glasgow. He (Mr. Currie) had been requested by him to say that although he was absent in body he was present in spirit, and extended the most hearty invitation that he could possibly give to the Conference. He hoped that invitation would be accepted. (Applause.)

Mr. MARTIN said the applause of the members made his task an exceedingly light one. It was to propose that the invitation which had been so cordially offered by Mr. Currie be accepted with equal cordiality. (Hear, hear.) He would not attempt to decide the knotty problem as to whether Liverpool or Glasgow was the second city in the

Empire, but they had seen for themselves this week that Liverpool was an extremely fine city, and those of them who knew Glasgow knew something of the beauties that Mr. Currie had been descanting upon. The situation of Glasgow and the West Coast of Scotland afforded facilities which they ought to avail themselves of. Those English members of the Conference who had not attended many of their meetings ought to make that an excuse to their wives, families, business friends, and other people concerned, for a trip to the West Coast of Scotland. He had very much pleasure in moving that the invitation be accepted, and they thanked the Local Committee in Glasgow for sending the invitation in such felicitous terms. (Cheers.)

Mr. W. F. WELLS, jun. (Dublin), in seconding the motion, said he could not look back as many there could to twenty years ago, when the Conference was previously held in Glasgow; but he could look back to the Conference held five years ago in Edinburgh, and he could not forget the hospitality which was extended to them then, and the magnificent reception which was then accorded them. If that was a specimen of Scottish hospitality he felt sure that they would be well repaid, and that they would not make a mistake in accepting the invitation. (Cheers.) With regard to the question of which city was entitled to be styled the second city in the Empire, as a visitor to Liverpool and, as he hoped to be, a visitor to Glasgow, he would not venture to express an opinion. He thought the best course to adopt was, as they did in Ireland, let them fight it out between themselves. (Laughter and cheers.)

The PRESIDENT said they had had a kind invitation expressed in felicitous terms by Mr. Currie, of Glasgow, and ably seconded by Mr. Wells, of Dublin, the centres of the two countries allied to England in forming the British Isles, and they could not but accept it. He would not offer an opinion as to which was the second city of the Empire; they would be able to judge when they had been to Glasgow. He thought it would be the wish of the Conference to accept the invitation which had been so kindly sent to them, and he had no doubt that Glasgow would do its best to give them a hearty welcome if they went there next year.

The motion was carried with acclamation.

The PRESIDENT said it had been decided that they should accept the invitation to visit Glasgow, and the time of meeting would be dependent upon the Glasgow people and the executive of the Conference. He hoped it would not be much later than this year, as they would like to have a convenient and somewhat equable temperature to get to the northern parts of the kingdom. He hoped it would not be September, therefore, before they had their meeting. The President concluded by formally announcing that the meeting next year would be in Glasgow, and the announcement was received with loud cheers.

Mr. CURRIE thanked the Conference for their acceptance of the invitation, and said that July was a very awkward month in which to hold a conference at Glasgow, but it was quite likely that the meeting would take place during the first few days of August.

Mr. PAYNE (Belfast) said the object of his rising was to extend to the Conference an invitation for the following year on behalf of his fellow-pharmacists in the North of Ireland. He had been requested to give the invitation for 1898 to the "commercial capital of Ireland." (Cheers.) This year they had met in the "commercial capital of England." (Laughter.) He thought there was no one present who would deny that fact. It was a city which had grown by leaps and bounds from a small fishing village to the centre of the commerce of the world. (Renewed laughter.) Next year, through the kindness of their Glasgow friends, they were to meet in the "commercial capital of Scotland." He thought that that got over the difficulty as to which was the chief city of the empire. It was eighteen years since the Conference met on Irish soil. Many since then had passed away. Some were now present who would remember when the Conference met in Dublin. He trusted that their memory of that meeting was one which would enable them to accept the invitation which his brother pharmacists were most anxious to extend. They could not find them a fine castle as they could in Dublin; they could not find them a seat of government as they could in London; but they could show them what industry could do for working people. Belfast was a working city,

everybody worked there from the richest to the poorest. Their Lord Mayor was a working man—that is to say, he was a partner in one of the principal shipbuilding firms of the world—viz., Harland & Wolff. They had already seen what the people of Belfast could do in the way of small shipbuilding in the excursion they went on the previous day. The small ship they were on was built in Belfast, as were all the other ships of the White Star Line—that line which was known all the world over as being the best built and conducted. (Laughter.) If the Conference should accept the invitation which his brother pharmacists of Ireland extended to them, they would do their best to entertain them and to make the visit a pleasant one.

Mr. W. A. MACKNIGHT said he had great pleasure indeed in supporting the proposition that had been made by his fellow-citizen, Mr. Payne, and in seconding the resolution that they should meet in Belfast in 1898. He could assure them that if the Conference met in Belfast in that year the pharmacists of Belfast and the North of Ireland would do their best to give them all the hospitality that that city could afford. As he was secretary of the Ulster Pharmaceutical Association he was sure that in their name he could offer them a very cordial invitation.

The PRESIDENT said they could only accept the kind invitation that had been extended to them perspective. They could not commit the Conference for another year. The invitation would be considered by the Executive and resolved upon some time between this and next year. They would leave that to posterity. (Laughter.) His term of office terminated now. He could not commit his successors to any line of conduct in regard to accepting the invitation.

ELECTION OF OFFICERS.

Mr. NAYLOR read the following list of names of gentlemen proposed as officers for 1896-7:—

President.

C. Symes, Ph.D., Liverpool.

Vice-Presidents.

Walter Hills, London
J. Laidlaw Ewing, Edinburgh

W. F. Wells, Dublin
R. McAdam, Glasgow

Treasurer.

John Moss, F.I.C., F.C.S., London

Honorary General Secretaries.

W. A. H. Naylor, London
F. Ransom, Hitchin

Honorary Local Secretary.

J. A. Russell, Glasgow

Other Members of the Executive Committee.

F. C. J. Bird, London
George Coull, Leith
E. H. Farr, Uckfield
John Foster, Glasgow
Professor Greenish, London

T. H. Wardlaw, Liverpool
Edmund White, London
J. C. Umney, London
R. Wright, Buxton

Auditors.

A. S. Buck, Liverpool
W. L. Currie, Glasgow

The PRESIDENT said the gentlemen whose names had been read were recommended for election by the Executive Committee. If any other names were proposed it would be necessary to have a ballot.

Mr. BUTLER (Leicester) formally moved the election of the gentlemen named.

Mr. CARTEIGHE seconded the motion, which was carried.

VOTES OF THANKS.

Mr. JOHN MOSS moved a vote of thanks to the Senate of the University College for granting the use of the theatre for the meetings, remarking that the College was one of the most beautiful buildings in Liverpool.

Mr. CROSS seconded the motion, which was cordially agreed to.

Mr. S. R. ATKINS said he had a complaint to make, and that was that he should have been called upon to move an important resolution when the brakes were at the door and the members were impatient to get away. His motion

was that the thanks of the non-resident members of the Conference be given to the local committee, and particularly to Dr. Symes, Mr. Wardleworth, and Messrs. Abraham, Bain, and Buck, for their efforts and for the very successful manner in which the arrangements connected with the Conference had been carried out. It seemed to him that, right away from the very beginning, so far as the social and business arrangements were concerned, nothing had been omitted. There had been a careful planning out in anticipation, and then a careful execution of everything when the time arrived. Their friends had controlled even the weather up to within the last hour or so, and he believed they would do what they could to secure a fine day for them on the morrow. (Laughter.) He believed that he would not entirely fulfil the duty that was entrusted to him if he did not return thanks on behalf of the ladies who were now resident to the ladies who were resident for their courtesy, kindness, and hospitality. On behalf of the lady visitors, therefore, he desired to say to the ladies of Liverpool and the neighbourhood that they felt extremely grateful to them. (Loud cheers.)

Mr. UMNEY, in seconding the motion, said he felt he could not show better appreciation at that moment of the efforts which the committee and the ladies had made on their behalf than by saying absolutely nothing, in order that full advantage might be taken of the further arrangements which had been made.

The motion was cordially agreed to.

Dr. SYMES, in response, said he desired to say, in the first place, that he was very grateful to the Conference for the confidence they had reposed in him by electing him as their President. With regard to the arrangements made by the local committee, he could only say that what had been done had been willingly done, and the members of the committee had felt it a pleasure to do whatever they could to make the Conference a success. A good deal of the success of a Conference did undoubtedly depend on the social arrangements being well carried out. They could not always command success, but they could deserve it, and the local committee had tried to deserve it. If they had done so they were very much gratified. (Cheers.)

Mr. WARDLEWORTH, who only rose in response to persistent cheering, caused much laughter by telling the story of a girl in Canada, who, having accepted an invitation for a toboggan ride, declared at the close that she would not have missed it for \$500, and who, when invited to repeat the experience, said, "No, not for a thousand." That, he said, was his feeling in regard to the secretaryship of the committee on Monday morning, but at that moment he could truthfully say that he was prepared to be at the service of the Conference again at any time he might be called upon. (Cheers.)

Mr. RUTHERFORD HILL said that among the many pleasant entertainments in Liverpool one stood out conspicuous, and that was the very delightful cruise that the members had on the previous evening. For that cruise they were indebted to the White Star Company, who had insisted on providing the steamer and the whole entertainment free of charge. (Cheers.) He moved that a vote of thanks be accorded the company for their kindness in placing the s.s. *Magnetic* at the disposal of the Conference, and for so sumptuously entertaining the members.

Mr. HARDWICK seconded the motion, which was agreed to.

Mr. T. B. GROVES moved that the thanks of the meeting be accorded to the Liverpool Corporation for granting the use of the Walker Art Gallery for the purpose of the *conversazione*.

Mr. BUTLER seconded the motion, remarking that those who had had the opportunity of spending Monday evening in the Art Gallery at the invitation of the President and the Liverpool Committee would remember the memento as a most pleasing one.

The motion was carried.

Mr. TYRER moved that the heartiest thanks of the Conference be accorded to the President for the ability, courtesy, and zeal with which he had discharged the duties of his office and conducted the business of the meeting. He said very few words were needed from him or anybody to emphasise the extremely appropriate terms in which the resolution had been couched. The courtesy had been most marked, and the zeal was only a continuation of that zeal

which Mr. Martindale had during the forty years to which reference had been made always manifested. His presidency forty years ago at Cardiff marked the same ability, the same courtesy, and the same zeal; and as long as Mr. Martindale was able to express his thoughts and work in any way for the good of his fellows, they might depend upon it that those qualities would always characterise him. His courtesy had been ably seconded in a charming manner by Mrs. Martindale, and he hoped the President would convey their thanks to his wife.

Mr. WARDLEWORTH said in order that no time might be wasted, they would believe him he was sure when he said that he seconded most sincerely and with all his heart the sentiments that had been expressed by Mr. Tyrer in proposing that comprehensive motion. The motion was carried amid applause.

The PRESIDENT, in responding, said he did not wish to detain the members. He would only say that he thanked them for the manner in which they had received the motion, and he assured them that it had given his wife and himself great pleasure to visit Liverpool on that occasion. It afforded him equal pleasure twenty six years ago to do so. There was another matter—viz., a vote of thanks to the Honorary Secretaries. He would not detain them at that moment, as he thought they could better express their feelings on the following day. ("Hear, hear," and cheers.)

This concluded the proceedings of the Conference, and the members then left at 4 o'clock for the excursion to the Lancashire Watch Factory at Prescott.

SANDWICHES OF SOCIALITY.

LADIES attended the meeting in goodly numbers, and the local committee took pleasure in looking after their pleasure. We understand that the arrangements for them were directly under the control of a special committee, consisting of Mrs. A. C. Abraham, Mrs. Bain, Miss Buck, Mrs. Conroy, Mrs. W. Paterson Evans, Mrs. J. Smith, Mrs. Symes, and Miss Wardleworth. Two apartments in the University College buildings were fitted up as toilet and drawing rooms, where Mrs. Lea looked after the comfort of visitors, and gave advice or assistance regarding visits to places of interest in the city; but the committee-women were all there. On Tuesday afternoon a drive round the city in open carriages was organised, and carried out to the great satisfaction of the visitors; and on Wednesday Messrs Ayrton & Saunders' box-factory was visited. One of the ladies has been good enough to show us her note-book in regard to the latter visit, as will be seen later.

THE BADGE worn by local members was a piece of white-satin ribbon with flags painted upon it, which in their nautical combination meant "When did you sail?"

MR. CARTEIGHE received another little surprise after lunch on Tuesday afternoon, when Mr. Ewing (the Chairman) asked him to come up to Room 119—reminiscent of the Society's old premises in George Street, Edinburgh—to meet a few Scotch friends. When he got there it transpired that the members of the Scotch Executive had had their recent minute (*C. & D.*, June 27) in respect to Mr. Carteighe engrossed in illuminated style, and this Mr. Ewing presented to Mr. Carteighe in a hearty speech. He recalled the ex-President's relations with Scottish pharmacists, and how with tact and judgment he had carried through a change in the administration of the North British Branch, which chemists beyond the Tweed now universally regard as in the highest degree beneficial to the branch as making for consolidation and bringing it into closer relations with the Society's headquarters. There was much in what Mr. Ewing said appreciative of Mr. Carteighe's genius as an administrator, his fairness as an opponent, and honesty as a friend; and Mr. W. L. Currie, speaking on behalf of Glasgow and the West of Scotland, as warmly referred to the straightforward manner in which Mr. Carteighe had won the friendship of chemists in his locality. Mr. Carteighe was much touched by the words of his old colleagues, and responded in an interesting speech, one of the most striking passages of which referred to the fact that when he entered the Pharmaceutical Society all the old leaders of it were to the

front, and he has seen more active workers of the Society carried off than any other pharmacist who has taken a prominent part in the Society's affairs. His references to the North British Branch were felicitous, and were to the effect that when he came into the presidency he found that such men as Jacob Bell and John Mackay, under whom the Branch had been founded and carried on admirably, were passing away, and there was little hope that the generation growing up would conduct affairs as they had done. So it was thought that it would be good for all concerned if a new basis could be formulated, and that that was the proper course, the events, though at first disagreeable, had amply shown.

OUR ARTIST has succeeded in catching a few good likenesses of prominent personalities, but he alone is to blame for not doing Mrs. Michael Carteighe full justice when she was having her hand radiographed.

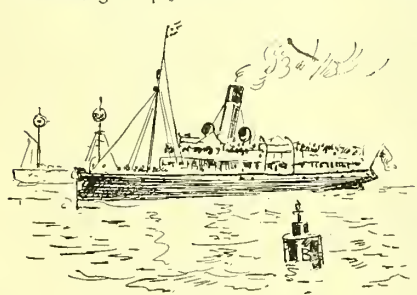
afternoon tea was served by the officials of the White Star Company in a most excellent manner. In consequence of the clearness of the atmosphere the Welsh mountains could be clearly distinguished, and an exceptional view was afforded of the island of Anglesea, which was so distinct as to give a clear view through the Menai Straits. After reaching the Bar lightship the vessel was put round, and the homeward journey was resumed under similar favourable circumstances. A small but very efficient band contributed greatly to the enjoyment of the trip. As the steamer neared the stage hearty cheers were given for the company and officials for the manner in which they had carried out one of the most pleasant items of the programme—which is putting it mildly, because all the trippers were ravingly enthusiastic about the delightfulness of the outing.

THE CHEMICAL LABORATORIES of University College were inspected on Wednesday morning by a party of about

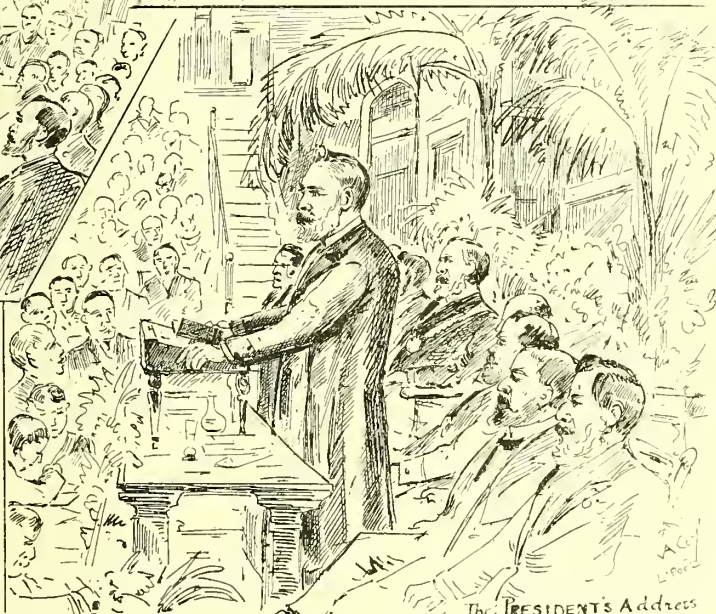
MR WRIGHT READS THE FIRST PAPER



SEA TRIP, by SS "Magnetic"



The X.Rays. Source at the Art Gallery



The President's Address

THE RIVER CRUISE, in which most of the members of the Conference participated on Tuesday afternoon, was held under exceptionally favourable circumstances, the weather being all that could be desired. The White Star steamer *Magnetic* left the stage punctually at the appointed time and proceeded at once up the river, passing the training-ships in the Sloyne, where the lads manifested considerable interest in the gaily-decorated craft, lustily cheering the pharmacists as they passed. The Ship Canal was approached as near as possible, and members were afforded a faint view of the dock gates and surroundings of the canal mouth. As the tide was rapidly falling the steamer had to put about, and she slowly proceeded down the east side of the river, giving everyone an excellent opportunity of viewing the seven miles of docks which constitute the source of Liverpool wealth and activity. As soon as the bay was reached,

forty members. Mr. Prosper H. Marsden, F.C.S. (who has been recently appointed lecturer on pharmacy at the College), acted as *cicerone*. The laboratories have been in use for about ten years, and are not, therefore, quite up to date in every respect; but Mr. Marsden made the best of them.

A SYMPOSIUM of the brighter spirits of pharmacy is now becoming a regular feature of the Conference meetings. On Monday evening the nuclei of the circle had no chance for coalescence, because the Wesleyan Conference leaders staying in the hotel occupied the chairs and evoked the merriment that the pharmacists might otherwise have produced. On Tuesday evening, however, after everyone returned happy from the trip on the Mersey, and dinner had enhanced fraternal feeling, Mr. Edmund White, Mr. Cowley, and Mr. Coull gathered the scattered atoms into as fine a vortex-ring

as was ever seen. It filled the greater part of the Moorish smoking-room, and as atom after atom was attracted into the ring cheers resounded through the lobbies, even threatening to wake the sleepers. A little after midnight the constituent molecules showed a tendency to dissonation, probably because it was not solely the problem of esterification which the leaders of the ring put forward for discussion.

EVANS'S LABORATORIES were a counter-attraction to the sessions of the Conference, and Mr. Michael Conroy found himself with a decidedly divided interest in having to conduct parties over the laboratories and look in occasionally at the meeting to make a speech. But he managed to do both very well. At all events quite a number of the visitors wished it to be placed on record how much they are indebted to Messrs. Evans, Sons & Co. and their chemist for so freely allowing their manufacturing arrangements to be inspected.

THE LOCAL HEROES were, without question, Dr. Charles Symes and Mr. Wardleworth. So the visitors think; and we have it on the authority of some of their colleagues on the local committee that these two gentlemen had arranged practically the whole of the details. So once more *palmam qui meruit ferat*, which, for the nonce, Dr. Symes may grasp with his secretarial colleague.

THE INEVITABLE PHOTOGRAPH was taken early this year immediately after the first session. The quadrangle of the hospital was the point selected, and in the Norman Gallery the President of the Pharmaceutical Society of Ireland, and other men and women of a retiring nature, planted themselves. On the grass in front a pyramid of steps had been erected, and here the photographer made an excellent grouping, and had everyone smiling before he pressed the Thornton-Pickard ball. A proof of the photograph was shown in the Arts Theatre on Wednesday morning. It is one of the happiest pictures taken of the Conferees, and Messrs. Moule and Paterson should have a good run upon it at 3s. per copy, mounted.

TABLET-MAKING should not come in here, but we do not know where else we can mention that Mr. Charles Symes, jun., gave on Wednesday afternoon a demonstration with Whitall, Tatum & Co.'s machine for use at the dispensing-counter. It is a small lever-machine, which works nicely, and we may give druggists' sundries houses the hint that they would find a ready sale for it or any other similar small and inexpensive lever-machine. This is a good opportunity of continuing old embossing-stamp presses with such a mould as Maw's.

THE LADIES' COMMITTEE on Wednesday morning took a party of ladies over the premises of Messrs. Ayrtton & Saunders in Duke Street. The firm, who had made special arrangements for their fair visitors, first showed them the mysteries of the perfume department, then passed on to the surgical instruments and appliances. The making of pill and fancy boxes then attracted attention, the ladies being deeply interested in the ingenious machinery employed in the various processes. The visit concluded with a demonstration of glass-blowing; the operatives, deserting their usual work, greatly diverted the visitors by making pickle-forks, studs, pens, and crochet hooks. The curious in literary matters were attracted to one of the houses occupied, by the fact that it had once been occupied by Nathaniel Hawthorne, the American author. All were delighted with the novel expedition.

THE VISIT TO THE WATCH FACTORY.—Though a somewhat late start was made for Prescott, a most pleasant ride marked the outward journey. Passing through Croxteth and Knowsley Park, the party reached the watch factory in time to have a hurried glance over the vast building. The place was throbbing with activity, and was a perfect hive of workers. Every piece of mechanism seemed to be perfect, and some were marvellous in their ingenuity and almost human adaptation to the most exquisitely exact work. From the metal to the finished watch was shown in all details, and everyone was sorry that more time could not be devoted

to the inspection of the factory. The coaches left Prescott at about seven o'clock, and the homeward trip was soon accomplished, under the most enjoyable circumstances.

THE SMOKING-CONCERT on Wednesday evening was a distinct success. Under the able chairmanship of Mr. Michael Carteighe no time was lost, and from the start everything went with a swing. Mr. A. H. Allen delivered his lecture on "Cats," his remarks being constantly interrupted by bursts of prolonged laughter. Mr. John Bain was responsible for the programme, which was uncommonly rich in humour. The following gentlemen contributed:—

DUET .. "Battle Eve" or "Excelsior" ..	MESSRS. McLAUGHLIN AND BAIN.
SONG "Friendship's Name" ..	MR. GEO. BRINSON.
SONG	MR. W. J. CHAMBERS.
HUMOROUS SONG	MR. W. BERRY.
SONG "Queen of the Earth" ..	MR. J. BAIN.
SONG "Eileen Alanah" ..	MR. H. P. McLAUGHLIN.
HUMOROUS SONG	MR. ALLEN.
SONG	MR. W. J. CHAMBERS.
SONG	MR. STROTHER.
SONG	MR. McLAUGHLIN.
HUMOROUS SONG	MR. W. BERRY.

The following ladies and gentlemen attended the Conference, but all who were there did not sign:—

Abraham, A. C., Liverpool	Ellithorne, A. W., Birkenhead
Abraham, T. Fell, Liverpool	Evans, B. E. Everett, Liverpool
Alexander, G., Waterloo	Evans, J. R., Liverpool
Alexander, J., Waterloo	Emerson, Mrs., London
Allen, A. H., Sheffield	Emerson, —, London
Allen, Douglas, London	Ewing, J. L., Edinburgh
Anderson, A. B., Dundee	Farr, E. H., Uckfield
Atkins, S. R., Salisbury	Fraser, A., Liverpool
Atkinson, Lea, London	Fraser, A., Paisley
Bain, Mrs. John, Liverpool	Gibbs, R. Darton, Birmingham
Bain, John, Liverpool	Gibson, F. J., Wolverhampton
Ball, Henry, Southport	Greenish, H. S., London
Bate, Henry, London	Grimes, Henry, Blackrock
Bates, James, Wellington (Salop)	Grose, N. M., Swansea
Beggs, Mrs. D., Dalkey	Groves, T. B., Poole
Beggs, G. D., Dalkey	Gulley, J., Belfast
Billington, F., Liverpool	Hardwick, S., Bournemouth
Bilson, F. E., Bournemouth	Harris, E. W., Merthyr Tydvil
Bird, Mrs., London	Hill, J. Ruthford, Edinburgh
Bird, Miss, London	Hocken, J., Liverpool
Bird, F. O. J., London	Howard, D. Lloyd, London
Black, H. M., Liverpool	Howie, W. L., Eccles
Blain, J. W., Bolton	Hubert, H. S., Wavertree
Blyton, John, Manchester	Hudson, T. H., Liverpool
Bowman, J., Leith	Hughes, J., Swansea
Brewis, E. T., Amptill (Beds)	Humphrey, J., London
Brevitt, W. Y., Birmingham	Humphreys, G., Northwich
Brinson, G., Birkenhead	Huttou, H., Leamington
Brinsou, W., Chesterfield	Idris, T. H. W., London
Brown, H., London	Idris, W. T. W., Liverpool
Bryan, A., London	Jackson, J., Bradford
Buck, A. S., Liverpool	Jackson, J. E., Stirling, N.B.
Buck, J. M., Birkenhead	Johnson, T., Wigan
Burleigh, W. M., London	Johnston, C. A., Manchester
Butler, E. H., Leicester	Jones, Frank, Liverpool
Carteighe, Mrs., London	Keeling, F. H., Liverpool
Carteighe, M., London	Kelly, R., Dublin
Chubb, W. H., Liverpool	Kemp, Harry, Manchester
Clarke, W. J., Stockton	Kendall, E. B., York
Collier, H., London	Kerr, C., Dundee
Conroy, M., Liverpool	Kershaw, A. N., Keighley
Conyngham, H., Dublin	Lake, J. Hintou, Exeter
Cooper, F. R., Manchester	Last, G. V. C., Liverpool
Coull, Geo., Edinburgh	Leatham, W. H., Liverpool
Cowley, R. C., Liverpool	Lescher, F. Harwood, London
Cross, W. Gowen, Shrewsbury	Littlefield, R. D., London
Currie, W. L., Glasgow	MacEwan, Peter, London
Davidson, A., Montrose	McKnight, R. W., Belfast
Davies, J., Swansea	McLaren, D., Edinburgh
Druce, G. C., Oxford	McMurray, J., Helensburgh
Dutton, H. O., Rock Ferry	Marsden, Prosper H., Liverpool
Dyson, Mrs., London	Martin, Mrs. N. H., Newcastle
Dyson, W. H., London	Martin, N. H., Newcastle
Eddie, R. B., Glasgow	Martin, S. M., Belfast
Elborne, Mrs., London	Martindale, W., London
Elborne, W., London	Mathews, H., Oxford

Meadows, H., Tuffley, Glos.
 Mitchell, R. H., Liverpool
 Moffitt, T. N., Belfast
 Morgan, H. B., Waterloo
 Moss, John, London
 Naylor, W. A. H., London
 Nightingale, J. C., London
 Park, C. J., Plymouth
 Parker, J. E., Liverpool
 Parker, R. H., London
 Parkinson, F. W., Atherstone
 Parry, E. J., London
 Paterson, A. L., Helensburgh
 Payne, J. C. C., Belfast
 Pearson, W., Waterloo
 Peck, Saville E., Cambridge
 Phillips, J., Wigan
 Pickard, W., Liverpool
 Pidd, A. V., Manchester
 Potter, Henry, London
 Prosser, S. A., Birmingham
 Ransom, F., Hitchin
 Ransom, W., Hitchin
 Raper, J. R., London
 Redford, Geo. A., Liverpool
 Riddle, T. E., Hexham
 Robinson, R. A., London
 Robinson, W. Prior, London
 Russell, J., Dundee
 Sangster, Arthur, London
 Shacklock, J. H., London
 Shepherd, J. W., Settle
 Siehold, L., Manchester
 Silson, R. W., Bradford
 Smith, John, Liverpool
 Smith, J. T., Radcliffe
 Spiuiks, L. L., Liverpool

Stockdale, R., Liverpool
 Strother, C. J., London
 Symes, Dr. C., Liverpool
 Sutcliffe, Mrs., Bacup
 Sutcliffe, G. H., Bacup
 Taubmann, R., London
 Taylor, E. L., Blundellsands
 Taylor, Miss M. A., London
 Taylor, G. S., London
 Thirlby, W., Birmingham
 Thompson, C., Birmingham
 Thompson, C. J. S., Liverpool
 Thompson, J. W., Edinburgh
 Thwaites, G. R., Liverpool
 Tibbuck, J., Liverpool
 Toone, Arthur H., Bournemouth
 Toone, John A., Bournemouth
 Tyrer, Miss, London
 Tyrer, T., London
 Umuey, J. C., London
 Walsh, J. A., Dublin
 Want, W. P., London
 Ward, J. S., London
 Ward, W., Liverpool
 Wardleworth, Theo., Liverpool
 Watson, D., Glasgow
 Wellings, W., Liverpool
 Wells, Mrs. W. F., Dublin
 Wells, W. F., jun., Dublin
 William, W. G., Conway
 Wokes, T. S., Liverpool
 Woodcock, J., Liverpool
 Wright, R., Buxton
 Wright, T. R., London
 Wyatt, H., jun., Bootle
 Young, J. Rymer, Warrington

Thursday was, as usual, devoted to the excursion. The party first went to Chester, proceeding next to Eaton Hall and thence to Hawarden. Here they were received by the ex-Premier. Mr. Gladstone, seated on the stone wall of his garden, gave a most delightful homely address to the visitors. He expressed his surprise that among the millions of prescriptions written yearly so few mistakes occurred. He himself had never suffered at the hands of chemists. He congratulated his hearers on the great advance which had been made in pharmaceutical science in recent years. Those who did not agree with him politically might take into consideration the fact that he was not likely to do more mischief. He thought it a good thing to have a chemist's shop near—the nearer the better. He was happy to say they had one in Hawarden. The right hon. gentleman's remarks were received with hearty cheers. The party afterwards returned to Liverpool.

Marriages.

EVANS—DODD.—On July 27, at West Derby Parish Church, by the Rev. W. H. Harpur, E. Michael Evans, pharmaceutical chemist, of Cardiff, to Mary, daughter of Mr. T. Dodd, West Derby, Liverpool.

EVANS—STANLEY.—On July 22, at St. Giles's Church, Shrewsbury, by the Rev. Cyril Thompson, Minor Canon of Winchester Cathedral, assisted by the Rev. Richard Evan-Jones and the Rev. Frederic Roberts, vicar of the parish, Arthur Ernest Evans, son of Edward Evans, D.L., of Bromofla, near Wrexham, to Agnes Louisa St. John Stanley, eldest daughter of the late Deputy-Surgeon-General St. John Stanley, A.M.D., and Mrs. St. John Stanley, of Worfield, Bridgnorth, Shropshire.

GILL—VINCENT.—On July 21, at the Cathedral Church, Liverpool, by the Rev. W. R. Duncan, M.A., Mr. William Sharpe Gill (chemist to Messrs. Ayrton & Saunders, Liverpool) to Louisa Mary, daughter of Mr. James Vincent, of Dorchester.

NELMES—MACAULAY.—On July 21, at St. Luke's Parish Church, Liverpool, by the Ven. Archdeacon Madden, Mr. George Nelmes, chemist and druggist, Liverpool, to Annie Nelson, elder daughter of George MacAulay, Liverpool.

STEMP—RUDIN.—On July 15, at the Wesleyan Church, South Norwood, by the Rev. G. Beesley Austin, Charles S. Stemp, proprietor of Guy's Tonic Company, of 12 Buckingham Palace Road, London, to Muriel, elder daughter of Rudolf Rudin, of Melrose House, South Norwood.

Deaths.

CANNELL.—On July 23, suddenly, from apoplexy, Mr. William Cannell, chemist and druggist, of Queen Square, Wolverhampton. Mr. Cannell, who was 57 years of age, was a native of the Isle of Man, and had been in business in Wolverhampton about twenty-five years. He came to Wolverhampton as assistant to Mr. Wootton, chemist, and afterwards commenced business on his own account in Bileston Street, but on Mr. Wootton's death Mr. Cannell took over the business, which he has since conducted. He was a staunch Churchman and Conservative. A sad circumstance in connection with Mr. Cannell's sudden death is that his mother, who is 84 years of age, was eagerly looking forward to seeing her son, as he had arranged to start the next morning for a short holiday to visit her.

COOPER.—On July 21, after a few days' illness, Reginald Augustus Cooper, M.R.C.S., youngest son of Albert Cooper, of Gloucester Road, South Kensington. Mr. R. A. Cooper was only 23 years of age, and had made a remarkably successful start in the medical profession by his distinguished career as a student at St. George's.

DAVIDSON.—An old and respected citizen of Aberdeen in the person of Mr. Charles Davidson, late chemist and druggist, died last Sunday night at his residence, Forresterhill. Mr. Davidson had been identified with the business-life of the city for upwards of half a century. He retired from active business many years ago, and had since lived on his pretty little estate of Forresterhill, where he devoted his leisure to his books and the pursuit of gardening. Up to within a fortnight ago he was able to step about, but the infirmities of age—he had reached his 84th year—ultimately laid him aside altogether, and at length he passed peacefully away, retaining to the last his mental faculties. Mr. Davidson was for many years in partnership with Baillie Williamson as a chemist and druggist, and afterwards started on his own account at 205 Union Street, where he built up one of the leading drug trades in the city. There he took into partnership Mr. James P. Kay, who still carries on the business under the title of Davidson & Kay. Mr. Davidson was a keen controversialist, and in the Church controversy which culminated in the disruption of 1843 he took a prominent part. Like his brother, the Rev. Dr. Davidson, who became minister of the Free West Church, he left the Establishment and became a devoted member of the Free Church, of which he was an elder. Mr. Davidson married Miss Ross, an Aberdeen lady, who survives him. There were three sons and one daughter of the marriage. The eldest son was the late Dr. A. Dyce Davidson, Professor of Materia Medica in the University of Aberdeen; the second is Dr. Charles Davidson, Coventry; and the third is George, a major in the Royal Engineers. The daughter is the wife of Colonel Andrew Baird, of the Royal Engineers.

TILLEY.—Sir Leonard Tilley, K.M.G., the prominent Canadian politician whose death was recently announced, was in early life a pharmacist. Mr. Tilley was born at Gagetown, New Brunswick, in 1818, and at the age of 12 commenced a four years' apprenticeship with Mr. William Smith, chemist, of St. John. Later on he started a pharmaceutical business in that city with Mr. T. W. Peters, with whom he remained associated for many years. In 1850 Mr. Tilley was elected member of the Legislative Assembly for St. John in the Liberal interest, and after serving for some time in the Cabinet he became, in 1857, Prime Minister of New Brunswick. This position he held for eight years. After the confederation of the British colonies on the North American continent in 1867 as the Dominion of Canada, Mr. Tilley became a member of the Canadian Privy Council, and afterwards held the portfolios of Customs and Finance. Later on he served as Lieut.-Governor of New Brunswick. Mr. Tilley was made a K.M.G. in 1879.

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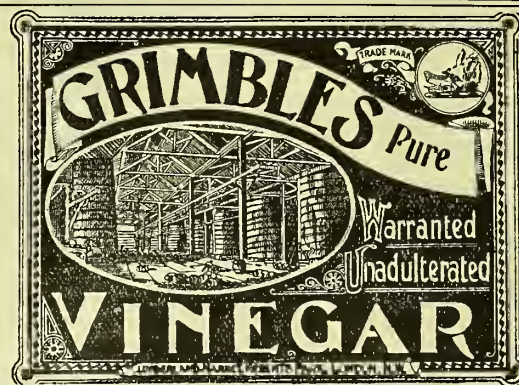
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CONFERENCE PHARMACY.

THE Earl of Derby stayed at the Pharmaceutical Conference
meeting long enough on Tuesday morning to hear Mr.
Martindale's view of what progress pharmacy has made
during the past quarter of a century. Had he stayed a little

longer he would have wondered what sort of fellows pharmacists are that they should speak of progress while their favourite peripatetic, social, scientific body is tottering towards bankruptcy. For that was the tone of the Executive Committee's report and of the Treasurer's statement. The Conference has been dying for some years now, yet it has not the look of a moribund body, and were we to judge by its appearance at Liverpool it is a lively sort of paralytic. All that the Conference needs to put it on a sure footing for the future is 100% more a year. There are plenty of men in the trade who would give that to ensure its continued existence; but it is members, not charity, that the Conference wants, and if Liverpool and Glasgow together do not bring forth the laggards then it will be time to begin to think that the spirit which founded it has departed from the craft, or decide whether British pharmacy needs a Year-book. The immediate purpose of the Conference is to nurse the spirit of fraternity in pharmacy, in which matter Liverpool has behaved itself nobly, and to encourage the taste for research in the ranks of the trade. In this latter direction the Liverpool meeting has been a fair average one. There were, perhaps, no papers of first-rate importance among the two-and-twenty communicated to the meeting, and there were certainly a few which were below the level of assistants' association standard, which were treated with due disrespect. The discussions were never brilliant, except when the members found themselves facing what we may call everyday subjects. We here submit brief summaries of the topics as the authors presented them and the members treated them.

Hemlock as a Medicine.

Messrs. Farr and Wright want to make short work of the pharmacopœial preparations of hemlock. They are all bad. The authors sketched to the Conference the medical history of the drug, showing that at various times it has gone out of use entirely, just as it is doing now. Fifty years ago Christison said the preparations were almost inert; later, Harley said the same thing; and now Farr and Wright bring forward incontrovertible chemical evidence to the like effect. Their paper was a long one, and argumentative; but they fairly proved their case in favour of a liquid extract of hemlock-fruit being the only potent and trustworthy preparation. The paper was, in a sense, the conclusion to previous investigations rather than a record of recent work. Certain as the authors were of the unreliability of succus conii, the testimony from members to the contrary was almost overwhelming, for the discussion clearly indicated that the juice is used in various parts of the country, in cases where there can be no denying that the action of the preparation must be appreciated; and although a liquid extract of unripe conium-fruit should find a place in our national Pharmacopœia, the opinion of the meeting seemed to be that succus conii should not be deleted. The President, too, gave a preliminary indication that the Pharmacopœia Committee is not in love with standardisation; but more of that anon.

Japanese Fennel Oil.

The enterprising Japs have lately been exporting fennel-fruit to the London market. It is quite unlike the fennel which we have been accustomed to, which is the largest of the official mesocarps, whereas the Japanese fennel is about the size of anise, and a little broader. We have made drawings of the three kinds, samples of which Mr. J. C. Umney (who communicated a paper on the subject) has been good enough to give us, and they will be seen in our report. Presumably the Japanese fennel is a variety of *Feniculum vulgare*, but upon this point Mr. Umney waits advice. The purpose of his paper was to show that the oil yielded by the Japanese fruit is substantially the same as that obtained

from East Indian and South European fennel. The following is a comparison of the U.S.P. factors for oil of fœniculi and those given by Mr. Umney for the Japanese and French fennel oils:—

	U.S.P.	French	Japanese
Sp. gr. at 15° C. ..	.960-?	.975-.980	.975
Solubilities at ..	5°-10° C.	—	7° C.

In odour and other characteristics the oil from the Japanese fruit resembled the European, but the percentage of anethol, which may be regarded as the active principle, is higher. The communication contained details of complete fractionations of the oil, which conclusively establish its identity with others, and this is all the more curious in view of the wide differences in the characteristics of the three fruits. The specimens of oils which Mr. Umney submitted to the meeting were scarcely distinguishable; had they not been labelled, no distinction could have been made between them. Mr. Harwood Lescher was the only member who rose to the real importance of the communication—viz., that Mr. Umney shows that we are now in touch with a new source of supply. Mr. Umney stated that the botanical identification of the plant which yields Japanese fennel will soon be made, and this will complete the matter.

The object of Mr. Leonard Atkinson's paper on "Radiography" was to call the attention of pharmacists to the probable uses which they may make of the art in association with medical men. Mr. Atkinson did not say anything new about the x rays, but he succeeded in putting the matter before the meeting in such a way that they could appreciate the value of radiography as a profitable extra; and Mr. N. H. Martin, from personal experience, testified to the soundness of his arguments. The only point which was left a little doubtful after the paper and discussion was the reason why vacuum tubes need to be rested. It seems that the interior poles carry occluded gases, which go out into the space and return with such alternation as to vitiate the results occasionally.

Official Juices.

Messrs. Farr and Wright communicated a second conjoint paper dealing in this instance with the B.P. succi belladonnæ, conii, hyoscyami, and scoparii. They described the assay process by which they valued a number of commercial samples of these juices, and showed that there is considerable variation in the alkaloidal strengths. For example, succus belladonnæ varied from 0.01 to 0.05 (average 0.03) per cent. of alkaloid, conium from 0.012 to 0.062 (average 0.027) per cent., henbane 0.004 to 0.006 (average 0.005) per cent., and broom 0.112 to 0.212 (average 0.162) per cent. The belladonna-juice is twice as strong as the tincture, but conium and henbane juices are about half the strength of the corresponding tinctures, and the authors do not think that these are sufficiently constant or reliable preparations to retain in the Pharmacopœia. As often happens, the points which the authors made seemed to be those which the listening members avoided. On this occasion they spoke all round the juices, admitting that they are variable things—like tinctures, for example—but there was no strong feeling in support of Messrs. Farr and Wright's suggestion that the juices should be discarded. Mr. Ransom very properly called attention to the influence which Nature has in the matter, sending occasionally a wet season to weaken the juices; and Mr. Umney showed how at other times one may squeeze out a juice (aconite was his example) and leave the crystallisable active principle in the herbal brick that is to go into the furnace. It was here that the President stepped in with

his declaration that the Pharmacopœia Committee is not prepared to go so far in standardising conium preparations as Messrs. Farr and Wright suggest, because they do not know enough regarding the chemistry of the drug to justify them in selecting conine as the basis of standardisation. The discussion also helped to emphasise a point referred to by Mr. Wright—viz, that the odour perceived when conium preparations are evaporated is not due to conine, but to some volatile principle, perhaps an essential oil. One may boil liquid preparations of conium without affecting the alkaloidal content.

Hydro-bromic Acid.

Some people complain about hydrobromic acid having a smell of sulphurous acid. It is reasonable to think that this is due to some slight sulphur impurity arising in course of manufacture, the bromine and sulphuretted hydrogen process being one of the best methods of making it. Mr. Charles Tyrer, who communicated a note on the subject, explained that he had failed to prove the presence of sulphur by chemical means, and his conclusion seems to be that hydrobromic acid *per se* has a sulphurous smell. This is not quite convincing, for it happens sometimes that hypophosphite syrups have a sulphuretted smell, and, although it is exceedingly difficult by chemical means to prove the presence of sulphur, the nose is a factor which cannot be ignored. There were less than a dozen members present when this paper was read, and the point of the discussion was what kind of glass is it that 30 per cent. hydrobromic acid attacks, and this Mr. Tyrer will no doubt respond to. The same author contributed the next paper, in which he gave the Conference the benefit

Acid.

Hypophos.

of his experience regarding the manufacture of hypophosphorous acid. He explained that the method of making it by the interaction of oxalic acid recommended by Lunan, and before him by Cooley, is unsatisfactory, because the product contains calcium oxalate, which is constantly separating; nor is the U.S.P. process (interaction of tartaric acid and potassium hypophosphite) much better, while the acid is certainly unsuitable for some purposes. The process which he prefers is the old one of decomposing barium hypophosphite in dilute solution with an equivalent of sulphuric acid, which gives "fairly good results." The paper was discussed by the President, who pointed out that Mr. Tyrer's formula is practically the B.P.C.'s.

Safety Pipette.

Mr. E. W. Lucas, "of Bell's," by introducing a sliding-stopper—i.e., a drop of glass—in the tube of a pipette between the mouthpiece and the bulb, has succeeded in preventing the liquids ascending to the mouth. The improvement does not interfere in the least with the use of the pipette. "You'll see it in the journals," was the gist of the President's comment upon this paper; and with that and a larger attendance they passed to the next one, a paper by the senior Hon. Secretary of the Conference and Mr. R. D. Littlefield, on

Cascarillin.

"A Crystalline Principle of Cascarilla." It is fully fifty years since Duval first separated cascarillin from the bark, and later C. and E. Mylius shortened the method of isolating it. Then, in 1882, Alessandri, an Italian chemist, who took a fancy for oxalic-acid solution as a solvent for vegetable principles, tried it on cascarilla, and obtained a quick and nice yield of "cascarilline," which he said was the same as Duval's, only more soluble in water. Yet, Naylor and Littlefield point out, Alessandri's cascarilline contained nitrogen, and its colour-reactions were different. They set themselves to solve the mystery, and succeeded, for, after making the principle by Duval's method and Alessandri's, they found that the latter was Duval's cascarillin contaminated with nitrogerous material, and that his pro-

cess is objectionable. The authors had also made a combustion of pure cascarillin, with the result that they assign to it the formula $C_{16}H_{21}O_5$, instead of $C_{12}H_{18}O_4$, as given by the Myliuses; and the fact that the authors found, on heating the body with zinc-dust, that it gave a distillate resembling anthracene ($C_{14}H_{10}$), points to their formula being nearer the truth. It is never safe, however, to be cocksure about the constitution of these mysterious bodies called "bitter principles." Cascarillin is not the active principle of the bark—at least Mr. Naylor would not commit himself to that. Probably, the essential oil has something to do with the old-fashioned reputation of the drug, but these were matters upon which the members could only conjecture, and they did.

Siftings Compared.

When drugs are comminuted for the purpose of making tinctures, &c., the resulting mixture after sifting contains fine, medium, and coarse powders. It has struck Mr. R. H. Parker to separate these portions in the case of belladonna-root, and, after applying some thinking to the matter, to subject them to analysis. The results he detailed in a short note, and it will astonish many to know that the coarsest powder (No. 20 siftings) gave the highest yield of alkaloid, and the finest (No. 60 siftings) the lowest yield—0.26 as to 0.19 per cent. The explanation is that the finest powder contains the starchy matter. The last sentence of Mr. Parker's note seemed to indicate that the Pharmacopœia means the finest powder to be excluded when it orders, say, No. 40; but it was some time in the course of the discussion before the members caught on to the purpose of the paper. At last Mr. Naylor said: When the Pharmacopœia tells you to take No. 40 powder, you must use No. 40, and not a mixture of that and something else. What are you to do with the gruffs? There were several explanations of what is done with the gruffs, and they were all equally ingenious; but the speeches served to bring out very clearly that when one cannot get some of a drug through a sieve he is not to reject it. When one needs 4 oz. of No. 40 powder he must not start with 5 oz. of the crude drug, and reject the odd ounce of coarse stuff. Mr. Druce put it well from the examiner's point of view with the help of digitalis. The candidate who rejects the midrib of that is performing bad pharmacy. Altogether this discussion was the best of the day—bright, lively, useful, yet it was about a little thing.

Tablet-making.

Another practical and popular paper followed it. It was by Mr. Stewart Hardwick, of Bournemouth, on "Tablet-making at the Dispensing-counter." Recollections of personal friendships formed at the last meeting of the Conference gave tone to the reception of Mr. Hardwick's paper. In it he claimed that dispensers should be as ready to make tablets as pills, and he showed them how it can be done with the simple tabule-mould sold by Maw, and which we illustrate in our report. The main point is to assist the ingredients to aggregate into a mass when struck, or to disintegrate when that is necessary. The paper contains all the "tips" that a dispenser needs, and need not be repeated here; but Dr. Symes wisely pointed out that tablets made by concussion can never be so uniform as those made by compression, and he was supported by Mr. Martin in saying that a lever-machine is much better than the one recommended by Mr. Hardwick. Several other useful hints came out in the course of the discussion, which closed Tuesday's proceedings, and before the Conference resumed on Wednesday morning, Mr. Symes gave a private demonstration with a small machine which his father, "the Doctor," recommended.

WEDNESDAY'S PROCEEDINGS.

There was laughter in the air on Wednesday morning, an almost constant ripple going round the room from the time that Mr. A. H. Allen poured vinegar upon the hot brows of those of the conferees who had gone early to bed that morning. A few ladies graced the proceedings for half-an-hour or more, but they were sought out by the local committee and taken away to see how boxes are made. A dozen papers were down on the programme for reading, and Mr. Martindale pushed matters along so well that eight of them were disposed of before luncheon, so well did he push things along; or, to put it another way, so smart is he becoming in presidential matters. The first paper was Mr. John C. Umney's on "The Effects of Climate and Soil on Oils of Peppermint."

How Climate affects Peppermint.

When Mr. Umney in February last communicated a paper to the Pharmaceutical Society on black and white Mitcham peppermints, it was suggested that the examination of oils distilled from Mitcham plants grown in the United States would probably yield interesting results. Since that time Mr. Umney has obtained authentic specimens of oils distilled in Michigan and New York States from black Mitcham plants. It will be remembered that the distinguishing feature between oils distilled from black and white plants grown in Mitcham is that the percentage of menthol esters in the white is higher. Moreover, the white has greater optical activity, and gives a deeper-blue colour with the nitro-acetic reaction. The result of Mr. Umney's present investigation is that the black Mitcham plant when grown in the United States yields an oil extremely like the white, as the following factors show:—

—	Sp. Gr.	Sp. Rot.	Menthol Esters	Total Menthol	Colour
			Per cent.	Per cent.	
Black Mitcham ..	0.9036	-25.5°	3.7	63.1	Light blue
White Mitcham ..	0.9058	-33.0°	13.6	65.5	Dark blue
U.S. Black Mitcham ..	0.9082	-28.6°	9.8	62.9	Dark blue

The last line of factors is the average of four specimens analysed by Mr. Umney, and it will be seen that they more closely resemble the English white oil than the black. Yet it appears that the white peppermint is not grown in the United States. It follows that the climate and soil of Michigan and New York have the effect of improving black peppermint, and it is exceedingly curious that while in England our trouble is the degradation of white peppermint into black, the opposite obtains in U.S.A. It is still more curious that the American climate and soil have comparatively little altering influence on Japanese peppermint which is grown in Michigan. Mr. Umney shows that the oil obtained from it is nearly identical with native Japanese oil. There was nothing but compliments paid to Mr. Umney in the discussion which followed, no new facts being elicited.

Mr. A. H. Allen, in his paper on "White-wine Vinegar," gave results of analyses of malt vinegar and genuine "white-wine vinegar," and deprecated the tautology of the latter name, as "vinegar" means literally "sour wine," so that the objectionable name really means "white-wine sour wine." Mr. Allen appealed to retailers not to assist longer in perpetuating a practically obsolete article, for he confessed that there is little genuine white-wine vinegar sold as such, and he had no hope that it ever would become popular

again. For that reason he appealed to retailers to stop calling dilute acetic acid "white-wine vinegar," but to name it "distilled vinegar." Mr. Carteighe led off the discussion with a strong word for the retention of genuine wine vinegar, because it is the finest thing for making salad dressings; and he hoped that pharmacists would do their best to get it repopularised. Nevertheless, Mr. Parker and Mr. Payne pointed out that what a very large section of the public want is dilute acetic acid. This met with the sympathy of the meeting; but Mr. Druce humorously voiced the indebtedness of salad-lovers to Mr. Carteighe for his hint; and Mr. Allen, in reply, said, in effect, sell what you like, but do not call A by the name of B.

Mr. Allen continued with his second paper, **Condensed Milk.** which was on "Condensed Milk." He pointed out that unsweetened condensed milk is generally three times the strength of new milk, and contains some preservative, such as boric acid. The sweetened milk is of the same strength, but contains 40 per cent. of sugar. He gave complete analytical data regarding various brands, and condemned the statements on the labels that when 1 part of such preparations is diluted with 14 to 16 parts of water the mixture is the same as new milk. It follows from the analytical data that the mixture is much weaker in nutriment than pure milk. He then referred to humanised milk, some of which are really good for feeding infants. Condensed skimmed milks he condemned, but said that recently there has been some improvement in them. This paper interested the members, to some of whom it was an eye-opener, but the President said that he knew of several cases in which children had thrived upon condensed milk made up as directed on the labels. Mr. Allen, in reply, did not deny this, but insisted that there should be some Act of Parliament to prevent people lying by label.

In a series of three brief notes Mr. William Elborne's **Elborne's Notes.** Elborne brought before the Conference as many homely topics. First he showed that

makers of sulphurated potash are not too careful in seeing that the potassium carbonate is pure—in fact, they appear to use pearl ash in making—with the result that the sodium salts and chlorides in it make the sulphurated potash dark in colour and not quite soluble, carbon in fine powder being suspended in it. When made with a pure salt of tartar, the product is pale greenish-yellow in colour, and gives a bright-yellow solution. The second note declared that cotton-seed oil is not a good substitute for olive oil, because it irritates the skin. It will be remembered that the 1880 U.S.P. recognised cotton-seed oil, and Mr. William Gilmour and Mr. Thomas Maben in this country spoke of it favourably; but its drying properties are, apart from Mr. Elborne's objection, against it, and it has not become popular in British pharmacy. In his third note Mr. Elborne said that the "g" is silent in "pharmacognosy." Whereat the Conference was much amused, and Mr. Carteighe pertinently condemned the practice of some speakers in giving the foreign pronunciation to words which have been incorporated into English—centimetre, for example. The members apparently thought so too, although Mr. Allen gave them one or two tough examples of erroneous accentuation. The note on sulphurated potash came in for a good deal of criticism, Mr. Farr and Mr. Tyrer clearly showing that the black powder is ferrous sulphide and not carbon, and Mr. Tyrer explained that salt of tartar could not be used in making the compound because it contains too much moisture. The discussion was one of the brightest of the meeting, and the author had once more the satisfaction of knowing that he had stirred up interest; but such spates of criticism are better avoided.

Formaldehyde. Mr. F. C. J. Bird scored well with his paper on the use of formaldehyde as a preservative. The paper contained a number of interesting statements regarding the difficulty of expelling formaldehyde from liquids to which it is added, this showing, therefore, that its presence is easily detected. The paper contains details of experiments made by the addition of the antiseptic to various galenical preparations, and it was shown that in the case of infusions it is better to put a few drops of formalin on a piece of cotton-wool in the neck of the bottle containing the infusion than to add the solution direct to the latter. The gaseous formaldehyde effectually prevents the formation of mould. This paper was much appreciated by the members, and it brought forth an excellent discussion, in the course of which other interesting facts about the uses of formalin were mentioned, especially its combinations with gelatine for photographic and surgical purposes. It will serve to call renewed attention to the uses of formalin especially in the household and in pharmacy.

Indian Podophyllum. At this stage of the proceedings the members were shown fresh specimens of *Podophyllum Emodi* and *P. peltatum*, which Mr. R. Reynolds grows in his own gardens at Leeds and, as often happens with things not on the programme, the humble specimens were received with cheers.

Pyroxylin. Mr. Tyrer, jun., again contributed to the proceedings a paper, in which he recorded experiments made with the object of ascertaining the precise conditions under which a soluble and non-explosive gun-cotton can be produced. The B.P. and U.S.P. directions are not reliable. The paper discussed the chemistry of pyroxylin, and the explanations which the author advanced in defining the constitution of satisfactory and unsatisfactory nitro-celluloses were corroborated by Mr. McNab, an authority on explosives, whose letter the author's father read to the meeting. As a comment upon the pronunciation discussion, Mr. Tyrer mentioned that Mr. McNab spells pyroxylin "pyrcillin"—but we question if he is any the better for that.

Bael-fruit. Mr. A. C. Abramam does not approve of the proposal to exclude bael-fruit and its liquid extract from the Pharmacopœia. He says the reason why the medicine has fallen partially into disuse is that the official process for making the liquid extract is not described sufficiently precisely, with the result that many preparations found in the market are almost inert. He makes it by bruising the fruit, macerating it thrice in cold water, straining through flannel, evaporating, adding spirit at the proper point, and retaining in the liquid the whole of the mucilaginous or pectinous matter which is precipitated. He produced medical evidence testifying to the efficacy of the preparation as a remedy for dysentery.

Liq. Auri et Arsen. Brom. Mr. Robert Wright once more laid the Conference under debt to him by a useful contribution to pure pharmacy in his paper on "Liquor Auri et Arsenii Bromatus," which has no connection with Keeley's gold-cure, but is a remedy for rheumatoid arthritis, which has become popular in that resort of the gouty and rheumatic—Buxton. The solution is generally made by adding tribromide of gold to Clemens' solution (a bromated Fowler's solution), but Mr. Wright says one has to sit down and wait a few weeks before that is ready, because the bromine takes so long in absorption. He recommends it to be made by adding to the alkaline solution of arsenic (2 gr. to 1 oz.) bromine and gold-leaf, boiling until the excess of bromine is dissipated, making up to a certain volume, and filtering. This is certainly much more expeditious than the old way, but it should be noted

that the new "National Formulary" gives a formula for a liquor auri et arsenii bromidi, which does not contain potash, and is as follows:—

Arsenous acid	..	..	..	2.5 grammes
Tribromide of gold	..	..	..	3.25 "
Bromine-water,				
Distilled water, of each a sufficiency to make				1,000 c.c.

Heat the arsenous acid with 135 c.c. of bromine water in a flask until all free bromine has disappeared, then add bromine water 20 to 30 drops at a time until it is present in excess, or the solution does not become colourless after some time. Then heat the mixture in a porcelain basin to expel the excess of bromine. Dilute with water to 800 c.c.; dissolve in this the tribromide of gold, and make up to 1,000 c.c. with water.

This solution contains $\frac{1}{32}$ gr. of tribromide of gold and the equivalent of $\frac{1}{16}$ gr. of tribromide of arsenic in 10 minims. Mr. Wright's contains $\frac{1}{4}$ gr. of the latter. It will be noticed that Mr. Wright gives the preparation a title whose English equivalent is "bromated solution of gold and arsenium," perhaps a more correct way of putting it than "solution of bromides of gold and arsenium," as arsenium bromide is not a constituent of aqueous solutions, because it undergoes decomposition in presence of water into the respective acids. Although the paper was read close upon the luncheon hour, it elicited a good discussion, in the course of which several speakers warmly thanked Mr. Wright for the services which he is doing to pharmacy in bringing forward such papers as this.

Resuming in the afternoon, forty minutes late, and with four papers to dispose of, the President started at a good pace and with a seasonable subject—viz., essence of rennet.

Essence of Rennet. Although, probably, the majority of those who attend the Conference are better able to appreciate a working formula than a chemical equation, and the Executive Committee are as glad of the former as the latter style of communication, comparatively few members have the courage to bring forward the formula. Mr. Forret's one for essence of rennet was, therefore, a welcome note, although there was nothing strikingly novel in it, except that he finds hours sufficient for exhaustion of the rennet where days are generally given, and prolonged maceration simply means that the essence becomes viscous. Mr. Forret's menstruum is a 10 per-cent. solution of salt to which 0.5 per cent. of boric acid is added, and, before filtration, 10 per cent. of rectified spirit. The President thought Mr. Forret's insistence on the use of dried rennet was a good point. Several members spoke, mainly in regard to the filtration of such liquids. It is well to bear in mind, as Mr. Umney pointed out, that animal charcoal removes the curdling ferment from such liquids.

Liverseege on Ginger. The next paper was interesting as bearing upon the re-use in commerce of ginger which has been "exhausted" by soluble-essence makers. Mr. J. F. Liverseege, F.I.C., who communicated it, brought forward a number of very interesting points, especially the fact that exhaustion of ginger with rectified spirit upsets the analytical factors very slightly, and to get to know whether it really is "spent" ginger it must be percolated with ether, the difference between the ethereal extracts of true and "spent" ginger being almost 4 per cent.—true 5.5 per cent., and "spent" 1.8. It seems, however, that commercial "spent" gingers have been treated with water as well as with rectified spirit, for they contain less water-soluble extractive than is found in spirit-exhausted ginger. It is, apparently, upon that ground that Mr. Liverseege says that perhaps the best way to tell whether a ginger is "spent" or not is to determine its cold water and methylated-spirit extractives. To that we may add that so much of the pungency is absent, by Mr. Liverseege's own

showing, from "spent" ginger that to taste it is to expose its poverty; and the meeting seemed to be of the same opinion, for such experts as Mr. Naylor and Mr. Umney said that one can never be sure when the extractives are right, as gingers vary so much in regard to these.

Chinese Opium.

In a paper communicated to the Pharmaceutica Society last December, Mr. Frank Browne, of Hong Kong, reported upon three different kinds of opium made from poppies cultivated in China. The morphine value of the opiums was: (1) Kweichow 43 per cent.; (2) Yunnan 9.4 per cent.; and (3) Szechuen 11.2 per cent. In a supplementary note, now communicated to the Conference, he reports that "smoking-extracts" have been made from the opiums—this process having the effect, we may explain, of slightly lowering the morphine value—and they were tried by experienced smokers, who pronounced them inferior to Patna opium, but their quality for smoking was in the above order. This proves once more that the alkaloids have less to do with the quality of smoking-opium than the flavour resulting from cultivation in India.

The members almost sighed when the last paper was reached, but they were little further ahead in knowledge of

Diphtheria Serum.

diphtheria anti-toxin serum after the abstract of Dr. Gordon Sharp's paper was read, that is so far as its active principle is concerned. The author described in an interesting way how the proteids and extractives are isolated, and named the hodies, which, however, are the same as in normal serum. As to the active principle, he proved that there is nothing of the nature of an alkaloid present, nor could he detect a ferment, which some suppose is the active principle. There is albumose, but Dr. Sharp thought that arose from age in bottle, and is not a natural constituent. There was no indication in the paper of the source of the serum, nor whether it was a weak or a strong one, but it served to show the members how chemico-physiological analyses are done, and how unsatisfactory they are when they are over. The President tahoed discussion on the subject. By this time members were flocking into the room, hats in hand, waterproofs on arm, with

The Finale.

expressions on their faces which said too plainly "How long are you fellows going to discuss things?" and "We'll see in the journals on Saturday." So speedily the usual donation of hooks was presented; Mr. W. L. Currie, of Glasgow, in an admirable speech, secured the visit of the Conference to the city of St. Mungo next year; and Mr. Payne, in ringing Irish eloquence, made sure of the reversion of 1898 for Belfast. Dr. Symes was elected president, amidst thunderous applause, and thanks were rattled over decorously and enthusiastically. Thus ended the solid work of the thirty-third Conference, with the assurance that the end of the century will see it in existence with fresh grafts of Scotch and Irish energy.

DIPHTHERIA ANTI-TOXIC SERUMS.

In last week's *Lancet* Mr. T. J. Bokenham, the medical director of Messrs. Burroughs, Wellcome & Co.'s bacteriological laboratory, and the firm themselves, reply to the criticisms of that journal's Special Commissioner, so far as these relate to the anti-toxic serums prepared by them. As we summarised the *Lancet's* allegations last week, it is only fair to give equal prominence to Messrs. Burroughs, Wellcome & Co.'s reply. Mr. Bokenham first states that Messrs. Burroughs, Wellcome & Co. rely entirely on his signed certificate as to the potency of all the serums they issue. He notes with extreme surprise that the findings of the *Lancet's* Commissioners are in nearly every case at variance with the claimed or assumed strength

of the serums issued by the various British and foreign makers, and he states they are at variance also with the results of his own official tests. He fully recognises the gravity of these discrepancies, and desires to seek out the cause of such differences. He has directed Messrs. Burroughs, Wellcome & Co.'s bacteriological laboratories for two years. The firm have furnished him without question of cost with every necessary appliance, and all tests needed to ascertain the strength of the serum issued have been carried out by himself personally. He has visited the laboratories in Germany, Brussels, Paris, and elsewhere, has sent them samples of his serums, has examined theirs, has taken the greatest care not to be an isolated worker, and has done everything possible to secure the greatest perfection attainable. Mr. Bokenham is sure that the *Lancet's* Commissioners have the same faith in the accuracy of their estimations as he has in his. He remarks that it was already announced that he should give at the Carlisle meeting of the British Medical Association a complete demonstration of all the processes employed in the preparation, testing, and bottling of serums, and he courts the keenest scrutiny and criticism. He suggests further that the whole matter shall be threshed out by the Commissioners and himself jointly in association with some recognised authority on such questions. He is authorised to offer every facility in the way of laboratory accommodation, materials, &c., for such a joint inquiry, and is prepared to give all necessary time to it.

Messrs. Burroughs, Wellcome & Co., in their letter express their opinion of the importance of the inquiry, which they consider demands immediate consideration. They say:—

"The question of *bona fides* on your part or ours cannot arise. It can form no part of the consideration of this matter, and will not be questioned. If your Commissioners prove wrong we are convinced it is due to the introduction of some source of fallacy into their methods of testing. If your Commissioners be right our methods of testing must be condemned, unless, indeed, it be found that alterations in strength depend upon some conditions not as yet ascertained of the environment of the serum after it is issued. No question of expense of manufacture arises, the cost of production of a strong serum being not appreciably greater than that of a weak one. Your allegation of such discrepancy between the professed and the actual strengths of the various serums is a matter of equal gravity whether your Commissioners be right or wrong. Whether the error be yours or the maker's it shows that there is such a variation in the results given by accredited methods of testing that it is imperatively necessary for some means to be immediately found to ensure uniform strength, and thus to secure the confidence of the profession in this most valuable remedial agent. The question as to the proper dose—*i.e.*, the number of units per given body-weight of the patient (having due regard to the nature of the case)—may, we think, be safely left in the hands of the distinguished scientists who now have the matter under investigation."

They then bring a counter-charge against the *Lancet*. If, they say, your tests were made when the serums were fresh, some of them must have been made twelve months ago. This is a remedy of which the proper strength may mean life or death. Was it not the *Lancet's* duty to make known their results, and so prevent the continued use of deficient or inactive serum much more promptly? But, however tardily they have announced their discovery, Messrs. B. W. & Co. say they desire cordially to co-operate with them in seeking the truth. They offer to bear the entire cost of the investigation which was proposed in Mr. Bokenham's letter, and they will contribute substantially towards the expenses of a thoroughly representative commission to ascertain a standard test to ensure uniform strength, which they would like to see applied by some central authority.

MR. MARTINDALE ON PHARMACEUTICAL PROGRESS.

IN many respects Mr. Martindale is an ideal President of a Pharmaceutical Conference. His intimate acquaintance with all the developments of pharmacy proper, and his keen interest in the applications of pharmaceutical research to medical treatment would enable him, we should think, to provide extemporaneously the materials for a presidential address of any required length, and to deal authoritatively with any subject likely to be raised for discussion. At Liverpool, as at Cardiff, Mr. Martindale's discourse consisted largely of a review of pharmaceutical progress, especially viewed in association with medicine. We know of no topic so essentially useful or appropriate, though it must be confessed that an excursion into the political arena of pharmacy, or a good, slashing exposure of our professional delinquencies, such as we were in the habit of hearing from the last President, Mr. Martin, is likely to be a shade more lively.

It is twenty-six years since the Conference met at Liverpool before, and Mr. Martindale has no difficulty in proving that many things have happened, even in pharmacy, since then. It would have been strange if there had been nothing new, but we are not sure that the progress is commensurate with the work expended during the past quarter of a century. The synthetic remedies—phenacetin, antipyrin, and the like—have been created; chloral hydrate, boric acid, salicylic acid, eucalyptus products, menthol, thymol, soft paraffin, cocaine, strophanthus, cascara, saccharin, and other things enumerated have either been introduced or have come into general use in that period, and all of them have been studied. A good deal of progress, too, is to be noted in the way of presenting medicines. Typical specimens of this feature of the modern art of pharmacy in the view of the President are Martindale's preparations of amyl nitrite and of nitroglycerine. Other people have "re-introduced" compressed tablets in these latter days "by illimitable advertisement." Mr. Martindale's questionable taste in thus referring to his own products with eulogy and to those of other firms with an approach to a sneer is, perhaps, to some extent redeemed by his evident conviction of the transcendent merits of his own preparations. He chooses his nitrite-of-amyl capsules and nitroglycerine tablets as specimens of pharmaceutical triumphs not with any idea of advertisement, but simply because he knows of no illustration so perfect.

Mr. Martindale's review of pharmaceutical progress during the past quarter of a century seems to assume that it depends entirely on scientific therapeutics. This may be the case in the future, but until quite recent times we got all our remedies either from savages or from quacks; and notwithstanding the notable modern influx of new substances into chemists' shops, it is still those old drugs, many of them in new forms, on which the world principally relies for relief from sickness. Scientific investigators have yet to justify their oft-repeated sneers at their more humble predecessors in the field of pharmacy. The former have to their credit the immensely-important discovery of anæsthetics, and latterly they have worked perseveringly at the production of synthetic remedies, some few of which seem to have established their claim to full recognition. The President of the Conference indeed asserts that they are beating quinine out of the field, for he says that, notwithstanding its low price, this drug "is not used in the popular way in this country to anything like the extent that it was when its value was five to ten times what it is now." We do not know what evidence Mr. Martindale has for this opinion, which is not that of

many persons well qualified to form one. The organic serums and animal extracts can hardly be said yet to be assured triumphs, and Mr. Martindale does not regard them as suitable subjects for a place in his address, though five years ago he devoted a paragraph to that famous result of scientific research—Koch's tuberculin.

Mr. Martindale holds strictly orthodox views as to the prices which pharmacists should charge for distributing medicines. Those prices, he argues, should not be altogether nor mainly dependent on the cost of the drugs; the care and skill of the dispenser should largely affect them. The contention is forcible, and the members of the Conference no doubt agreed cordially with it, but they, unfortunately, are not purchasers. The Earl of Derby was the one listener to whom the lesson may have been profitably addressed, and we hope he has duly taken it to heart.

A NEW CROOKES IDEA.

Mr. William Crookes, writing in the *Chemical News* regarding the effect of molecular bombardment on the diamond says that on recently examining some diamonds sealed up in a vacuum tube and considerably blackened many years ago by the electric discharge, he thought they were by no means so dark as they were when they were being frequently exhibited. It is not beyond credibility, he says, that a renovation may take place in the course of time and rest. The molecules of diamonds are in a state of constant motion. Those constituting the body of the diamond vibrate in a manner different to the converted graphite molecules forming the superficial layers. It is not so very unlikely that the whole mass of crystalline diamond vibrating in one manner may so hamper the movement of the comparatively infinitesimal number of graphite molecules vibrating in another direction that the latter may gradually be constrained to take on themselves the same kind of motion as the crystal itself is engaged in, and so become ultimately re-converted from graphite to diamond.

STRAINING THE DENTISTS ACT.

The Cardiff Stipendiary Magistrate takes a strong view in regard to unregistered persons who practise dentistry. A chemist who had the words "popular dentistry" on his shop-window, and another person who described himself as an artificial-teeth manufacturer, are both held to have infringed the Act by using a description implying that they are registered under the Act or "specially qualified to practise dentistry." The Stipendiary intimated that he was helped to this opinion by the perusal of cards which both of the defendants issued. The chemist's card gave prices and said fit and appearance were guaranteed. On the other the defendant claimed a good deal of competence for the work he professed to undertake. But the cards had nothing to do with the offence. The Act says that the "name, title, addition, or description" must imply the special qualification, and by the term "specially qualified" we presume is meant, not necessarily highly qualified, but qualified in the special manner prescribed in the Act. Magistrates seem to forget that there is nothing in this or any other Act of Parliament which makes it an offence to practise dentistry. Anybody has a legal right to draw teeth and to fit and supply artificial ones to any extent, and he may push his business as much as he possibly can. Why does not the unqualified dentistry association fight a case of this sort through to the High Court, like we did the veterinary chemist's case, and get the law clearly stated?

SMOKERS are less liable to diphtheria and other throat-diseases than non-smokers in the ratio of 1 to 23. So a Vienna professor says.



IN spite of the distance from the Metropolis, and the general belief that the Carlisle meeting was likely to be a small one from a numerical point of view, exhibitors at the Annual Museum showed the usual enthusiasm, and early on Tuesday morning, when the *C. & D.* representative began taking notes, nearly all the exhibits were fixed and in full working order. All the rank and file were there with shows, great or small, according to the importance of the article or articles to be displayed. For once in a way the room allotted to the annual museum was large enough to afford reasonable accommodation, thus obviating the necessity of relegating several aspirants to publicity to hole and corner recesses. Some of the exhibits, indeed, appeared almost uncomfortably at ease, with a frontage more or less out of proportion with the number and quality of goods on parade, necessitating the judicious use of pictures and flags to fill up the gaps.

The organising Secretary, Dr. Macdonald, seems to have been at great pains to secure the harmonious working of this important adjunct of the annual meeting, and throughout Tuesday he was to be seen actively at work, smoothing down difficulties as they arose, offering advice where needed, and stimulating progress when exhibitors were behindhand.

With their usual acuteness, Messrs. BURROUGHS, WELLCOME & Co. had secured the most prominent place in the show, and their colonial exhibit, just opposite the main entrance, could not fail to strike the visitor's eye in an allegorical sense. Various new features have been introduced into the arrangement of their stand, the better to attract and rivet attention. A huge tank filled with turbid water contained a few selected cod-fish, intended to show the original *habitat* of the viscens from which the cod-liver oil is obtained. The fish looked dejected and full of apprehension as to their immediate future, and in spite of relays of men who pumped air into the water through the live-long night, one or two of them deliberately turned on their backs, a sign (in fish) of impending dissolution. So much for the oil which is an important constituent in the succulent blend of oil and malt, for which the firm are celebrated. The genesis and preparation of malt-extract were dealt with in a series of exhibits, synthetical and analytical, comprising show-phials full of the various chemical constituents of the extract, culminating in the product which, under the designation of "extract of malt (Kepler)," has done so much to rescue the present generation from a condition of defective nutrition. The

recent development of "organic therapeutics" has prompted the firm to go in largely for tabloids of compressed dried secretions and viscera. The additions to the list of tabloids in this direction are numerous and striking. There are "tabloids" of liver, spleen, kidney, nerve-substance, and renals, and even of Fallopiian tube (!), carrying one back in imagination to the witches' cauldron and its magical, if somewhat heterogeneous, contents. Of tabloids in general it is unnecessary to say much. Their name is legion, and the ophthalmic, hypodermic, aural, and nasal varieties merit special attention. The tabloid form has now been carried into the departments of clinical analysis and photography, where their convenience is fully as great as in internal medication. Side by side with the various "serums," which have, during the last year or two, become a salient feature in the firm's preparations, there was a large and interesting exhibit of microbial *cultures*, with illuminated micro-photographs on porcelain of their microscopical appearances. There is the antidiabetic serum, liquid and in scale form, as to the virtue whereof so much difference of opinion still exists, but which is nevertheless in great demand. A new feature in medicine chests is the use of aluminium for the box, whereby a saving of some 20 lbs. in weight is secured. It remains to be seen whether this beautiful but too impressionable metal will withstand the vicissitudes of travels in savage lands.

Amongst new tabloid medicine cases of historic interest is one used throughout the Chitral Expedition, and duplicates of the chests and belts supplied to the Nansen and Jackson-Harmsworth Polar Expeditions.

There are also some new tabloids and solids, notably anæsthetic tabloids, for producing local anæsthesia by hypodermic injection and infiltration in minor surgery (this method was introduced by Dr. C. L. Schleich, of Berlin). Pig-bile tabloids are the outcome of a suggestion that the bile of an omnivorous animal like the pig should prove more potent in human medicine than that of the herbivorous ox, and stypticin tabloids are a new uterine hæmostatic combining the virtues of hydrastine with the sedative and anodyne properties of opium. Stypticin is a coined name for cotarnin-hydrochloride.

Close by we come upon the rival exhibits of condensed milk—Nestlé and the Anglo-Swiss Company.

The ANGLO SWISS CONDENSED MILK COMPANY have a very good display of their products, the virtues whereof were

expatiated upon by an obstetrical muse tastefully arrayed in the characteristic garb. The "Milkmaid" brand of condensed milk is now well known throughout Great Britain. In addition, there is the "Ideal" milk, a concentrated product of pure unsweetened milk, enriched by the addition of 20 per cent. of cream. This is a convenient form of sterilised milk, and when mixed with water, furnishes a beverage very pleasant to the taste, though not indistinguishable from the natural article. The firm also exhibit condensed milk with cocoa, coffee, &c.

NESTLÉ'S exhibit, though not extensive, represents a very important industry. It only comprises two products, viz, Swiss milk, described as "the richest in cream," and Nestlé's food, which is by this time a household word in England.

Mr. KÜHN, of 36 St. Mary-at-Hill, E.C., had a prominent exhibit, comprising several novelties of considerable interest. Though the supply of antiseptics and germicides might have been thought to be fully equal to the demand, the cry is "still they come." Chinisol, the last comer, is a yellow powder, with a faint but persistent aromatic odour, readily soluble in water in all proportions, for which are claimed antiseptic powers ten times those of corrosive sublimate and forty times those of carbolic acid. As it is absolutely non-toxic, it may prove the means of saving untold lives at present sacrificed on the altar of corrosive antiseptics. Tannalbin, another novelty, is a combination of tannin and albumen which, while unaffected by the gastric juices, is gradually decomposed in the intestine, where it yields its tannin constituent, free to exercise its astringent properties where most needed.

Still another novelty is ferropyrin, a combination of anti-pyrin and perchloride of iron, for use in diseases in which iron is indicated. It is a permanent salt, and makes a very elegant mixture for internal administration.

It remains to mention diuretics, papain and its various preparations, the capsules of salicylate of colchicine, various organo-therapeutical preparations, and, lastly, the ethyl chloride and "anestile" cylinders, for rapidly procuring local anæsthesia.

At a safe distance one from the other are the two great rival "natural aperient waters," Hunyadi János and its neopponent "Apenta."

Of HUNYADI JÁNOS water it may fairly be said that its name is a household word all over the civilised world. It is the type of natural aperient waters, and, judging from the sale returns, its popularity continues to increase in spite of competition on all hands. The stand was graced by the presence of Mr. Edmund Saxlehner, who now controls the English business.

The APOLLINARIS CO. (LIM), in addition to the universally-known water from which they take their name, exhibit, for the first time in the Museum, a trophy of their new "Apenta" water from the Uj Hunyadi springs near Buda Pest. "Apenta" is a natural aperient water, containing sulphate of magnesia and sulphate of soda in relatively large proportions, the former predominating very decidedly, and thus giving the water the special quality whereby it stimulates the gastro-intestinal canal without causing irritation. It contains also lithium salts. Like all the group of these Hungarian bitter waters, "Apenta" is formed at a depth not exceeding 15 to 20 feet below the surface, its chemical composition being due largely to the solution in the water of the chemical salts of the stratum of the ground through which it flows. The Uj Hunyadi springs, from which the "Apenta" water is drawn, have been placed under the control of the State Chemical Institute of the Ministry of Agriculture of Hungary, and the bottling of the water takes place under the direct supervision of this department.

Friedrichshall aperient natural mineral water is also shown here. This water is rich in the alkaline chlorides as well as in the magnesium sulphate, and is an habitual aperient suitable for continuous use, having tonic, alterative, and diuretic action.

The LIEBIG EXTRACT OF MEAT COMPANY showed their extract of meat, sample boxes whereof were placed at the disposal of visitors, as also their "Peptarnis," or peptone of beef, a highly nutritious and assimilable form of meat. Medical visitors were presented with an elegant letter-weight

of block glass showing the firm's signature in gold letters, a "souvenir" which met with ready acceptance.

BOVRIL (LIMITED), Farringdon Street, E.C., have a good show, and their preparations are freely dispensed to medical tasters by a young and pleasant lady attendant. The leading line, "Bovril," is much to the fore, and we also noticed "Bovril" beef-jelly, "Vril" food, which is composed of milk, malted cereals, phosphates, &c., and "special emergency foods," containing the largest amount of stimulative nourishment in the smallest possible bulk, as supplied to the Nansen, Jackson-Harmsworth, and Wellman Arctic expeditions. "Kudos" cocoa, wild-cherry sauce, "Bovril" cocoa, chocolate, wine, and lozenges were also well displayed at the stall.

ARTHUR & Co., of 69 Berners Street, London, W.C., exhibit a combination of pure arsenious oxybromide with anric bromide (liq. anri. brom. arsen.), of which they claim to be the only manufacturers in this country. It is being extensively prescribed for neurasthenia, epilepsy, locomotor ataxy, myelitis, &c. Another form contains the addition of mercuric oxybromide, for syphilitic affections, rheumatism, sciatica, and phthisis. Crystals of the pure oxybromides are likewise shown, which are probably the only specimens existing, as hitherto these salts have had no commercial use. "Rupeol" is a tasteless and odourless petroleum oil of sp. gr. .870, and m.p. 15° C. intended for internal administration in pulmonary and other affections, in the place of cod-liver oil. "Tannopumilio" is given in cases of irritation of the skin produced by perspiration, friction, abrasion, solar heat, &c.

DUNCAN, FLOCKHART & Co., of Edinburgh, have a very large stand, at which they show the preparations for which they have long had a world-wide reputation—chloroform, s.g. 1.497, from pure and from methylated alcohol, and non-decomposable chloroform, s.g. 1.490, containing 1 per cent. of absolute alcohol. Coated pills, capsules, and compressed tablets of various kinds are also shown, and there is likewise a display of chloric ether (Duncan), an article quite distinct from spir. chloroformii, B.P. Duncan's antiseptic "Dermolia" is a pleasantly scented emollient antiseptic cream, containing zinc oxide, carbolic acid, thymol, woolfat, &c.; and under the name of "Koptalgos" a preparation of opium is exhibited which can be administered in cases where the tincture does not agree, or where there is a prejudice against opium. Koptalgos is said to be less liable to produce constipation and headache than the tincture.

In the middle of the central row is the LIQUOR CARNIS COMPANY'S stand, with an appetising display of "Virol," "Caffyn's Malto Carnis," "Marrol," "L. C. C. Meat Juice," and so forth. "Virol Sans Sucre," which is just being placed upon the market, is a form of bone-marrow, especially adapted for diabetic patients, and generally for those who dislike sweet foods. It is free from sugar and starch. Caffyn's Malto-Carnis, consisting of two-thirds by weight of Caffyn's Liquor-Carnis, 10 per cent. of cocoa-essence, and 24 per cent. of extract of malt, is a palatable form of raw-meat juice, specially adapted for persons who are under the sad necessity of making hasty meals.

CEREBOS (LIMITED) is now seen at all pharmaceutical exhibitions. Cerebos is one of those excellent articles that are the despair of the exhibition-reporter, who vainly racks his own cerebral apparatus for a new adjective to apply to the preparation. The difference between "Cerebos" and ordinary table salt is that the former is at once a condiment and a food. Cerebos is a beautifully white salt, and never becomes lumpy. The merits of the article are pithily put forth in a handbill, in which the schoolmaster addressing his class, observes:—

—"Cum grano Cerebos!" "Decline 'Cerebos.'"

—"Can't, Sir; nobody can who has tried it,"

replies the boy.

The Cerebos Company also manufacture the "Seraph" refresher, an effervescing-saline tonic, believed to have been invented by the sweet seraph who sits up aloft to keep watch o'er the liver of Jack.

INGRAM & ROYLE, of 52 Farringdon Street, E.C., exhibit three medicinal waters—Carlsbad, Oberbrunnen, and Vichy. Carlsbad salt is also shown, not only in the old crystal form, but also in powder. As the powder, unlike the crystals, does not deliquesce, it is very suitable for export to hot climates. Carlsbad water and salts have an old-established reputation in gout and in affections of the liver and stomach. An in-

novation has also been made in the case of Vichy water, which is now being offered in half-bottles as well as in the larger vessels. The half-bottles are handier and more economical, as there is less waste with them than with the whole bottles. The medicinal reputation of Carlsbad is as old as its hills, or, at any rate, as the oldest tree upon them. In proof thereof, the existence of a pictorial plan of "Das Kaiser Karls Badt," dating from 1625, may be cited. In this print the various pensions, inns, and other comforts of Carlsbad are clearly shown. As for Vichy, its increasing reputation is perhaps most strikingly indicated by the following official statistics (which have been carefully kept since the company obtained their concession from the State in 1853) showing the number of bottles sent out from the springs:—1853, 461,894 bottles; 1863, 1,502,940 bottles; 1873, 2,901,045 bottles; 1883, 5,363,209 bottles; and 1893, 8,620,000 bottles. Last year the export for the first time attained 9,800,000 bottles.

The SANITAS COMPANY (LIMITED), of Bethnal Green, E., make their usual effective display of disinfectants, most of which are familiar acquaintances at exhibitions. The list of the Sanitas Company's preparations shown at this exhibition now numbers nearly fifty varieties, ranging from fumigating-candles to dog-scrap, and from shaving-sticks to "Sanitas" distemper. "Okol" is the latest of the company's candidates for disinfecting honours. It is shown for the first time at this exhibition, and may be described as a disinfecting fluid of intense germicidal power. "Okol" is not a coal-tar product, though its exact composition and derivation are, of course, kept secret.

Besides disinfecting fluids and the like, the company show specimens of new patent improved drain-testers. This drain-tester contains the necessary chemicals in a sealed package, at one end of which a string is fastened. The package is placed into the w.c. or gully-trap and washed down with a pail of water, care being taken to secure the string. The package opens when the trap is passed, and under the influence of the water a strong-smelling smoke is given off by which any defect in the drain is easily ascertained. The test takes about fifteen minutes.

REYNOLDS & BRANSON, of Leeds, have an interesting, albeit a small, exhibit on which several novelties are shown. Among these are the patent dustproof self-closing drawers, to which a further improvement has lately been added in the shape of patent self-wiping glass shelves. Another novelty is the "Silent Post-mortem Hammer," of which the head is fitted with a rubber pad, which deadens the noise of the blow without lessening its force. In the shaft of the hammer a metal chisel is ingeniously fitted. The "Enema-valve Strainer" is designed to prevent the tail-end valve of an enema-syringe from getting blocked by fluff off a blanket or by other material from woollen or cotton fabrics. The same firm show a new aluminium x-ray meter for measuring the intensity of Röntgen's rays, and an arrangement for taking one or more prints at the same time as the negative, and a collection of radiographs taken by them illustrative of the application of Röntgenography in surgical cases.

BLEASDALE (LIMITED), of York, now appear at an exhibition for the first time in their career of 116 years. They show soluble coated pills, of which they have been makers for over twenty-five years, and have a good all-round exhibit of granular effervescent preparations in their most popular combinations. Concentrated decoctions, infusions, fluid extracts, syrups, and the like are also shown, along with the recently-introduced cooked and partially-digested "Busy Mother" infants' food. *Syr. violæ sicca*, a dried syrup in the form of a fine, dry powder, shown at this stand will, it is claimed, keep "for any length of time." The syrup is guaranteed to contain no colouring-matter whatever, except that of the pansy violet. The syrup and liquor made from the powder are deeper in colour than the usual commercial articles, and cost considerably less. A few fine green specimens of new poppies grown in the neighbourhood of York are also exhibited.

CAMWAL have a "Doctors' Welcome Club" in the platform retiring-room, in addition to a fine exhibit of aerated waters in syphons displayed at the foot of the stairs leading to the platform. At their stand they show sulphuric lemonade (a cholera specific), lemonade from fruit, piperazine water, and the usual assortment of other waters. We notice in the Museum Catalogue a clever advertisement from this firm

taking the shape of a request to medical men to specify "Camwal" when prescribing the B.P. lithia water.

The MALTINE MANUFACTURING COMPANY (LIMITED) have brought out a new combination of their product—viz, with coca wine. Each fluid ounce of the preparation contains the active principles of gr. xxx. of Huanoco coca-leaves, and $\frac{2}{5}$ oz. of maltine. It is claimed for this preparation that a dose of it contains sufficient diastase to convert more starch than can be converted by a dose of any unattenuated malt-extract now on the market.

Our illustration shows the style of bottle (18 oz.) in which this new preparation is brought into commerce. Among the other exhibits shown here are maltine in combination with cod-liver oil, lime, cascara, iron, &c., as well as plain maltine.

CARNICK & Co.'s exhibit, which forms a joint show with the foregoing one, comprises "beef peptonoids," a preparation in powder containing sterilised and partly-peptonised concentrated beef, milk and gluten, and liquid peptonoids, representing the beef peptonoids entirely digested and dissolved, forming a palatable predigested nutrient in the form of a cordial.

Liquid peptonoids with coca is also included, and Carnick's soluble food for infants, a milk-wheat food, in which the milk is partly predigested, and the starch of the wheat converted into dextrine and maltose. Sugar of milk is added to raise the saccharine constituents to the equivalent of mothers' milk. Soluble food is a complete food for infants without the addition of milk or any other food-substance, and is easily prepared with water only.

The LIVERPOOL LINT COMPANY, of Liverpool, have a fine show of flax and cotton lints of various qualities, the entire process of manufacture of which is carried out at the company's own factory. A special display is made of absorbent cotton-wools, for the manufacture of which the company have lately put down extensive machinery of the newest design. The firm have also improved their appliances for the manufacture of splint-padding, a dressing brought out by them some years ago, which was very favourably received by the trade and medical profession. This improvement will enable them to supply the padding in future at a considerably reduced cost. The only novelty the company are showing is a "first field dressing," a small packet measuring 3 in. by 4 in., hermetically sealed in a waterproof envelope, containing all the necessary articles for first aid to the injured, the contents comprising bandages and two safety-pins, pad of wool, gauze, and piece of jaconette, the whole rendered antiseptic. The exhibit further includes carbolised tow, carded surgeons' towels, and a fine selection of transpirable lambs-wool goods for underwear.

CADBURY BROTHERS, of Birmingham, make a good display of their world-renowned cocoas and chocolate. It is impossible to say anything new of these goods, but attention may be called to the fact that the firm guarantee their goods to be absolutely pure, and to contain none of the added alkalies frequently found in so-called "pure" foreign cocoas. It will be remembered that the addition of such alkalies has recently been strongly condemned in the medical Press from an hygienic point of view. Specimens of cocoa in various stages of manufacture are shown.

BRADY & MARTIN, of Newcastle-on-Tyne, have one of the largest exhibits in the hall. A considerable portion of this is occupied with a display of fine chemicals and galenical preparations, and with requisites for bacteriological and analytical examinations.

A good show is also made of aural ovoids for medicating



the middle ear. These "aural ovoids" were introduced into medical practice by Professor Gruber. They consist of medicated-gelatine preparations, which are introduced into the auditory canal (after it has been washed out with a warm 4 per-cent. solution of carbolic acid) with an aural



forceps, and the meatus closed with cotton-wool. The preparation dissolves in the ear, alleviating the pain, and in many cases cutting short the inflammatory process. The treatment has been found particularly useful in cases of impacted cerumen.

Messrs. Brady & Martin have lately established, in connection with their business, a "skiagraph" laboratory (they seem to prefer that word to "radiograph"), in which they have photographed numerous cases. The one here illustrated, of which a "skiagraph" was taken last February, was a particularly interesting case, and the picture taken from it one of the most successful obtained at that time. It shows a dislocated phalanx of the ring-finger, in which the external sign of the displacement was very slight.

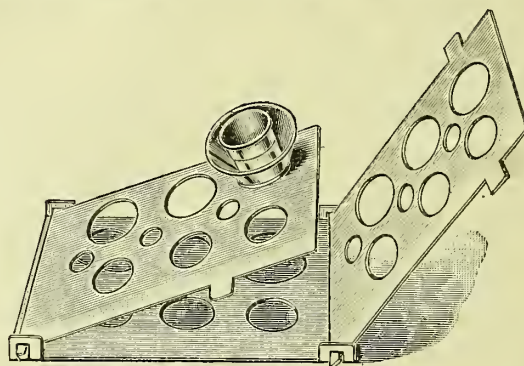
The large exhibit of OPPENHEIMER, SON & CO. (LIMITED) has the following among its leading features:—

Palatinoids are shown in great variety, prominent among them being the palatinoids of liquid drugs. We noticed such drugs as creasote, santal oil, male fern, chlorodyne, ether, amyl nitrite, &c., which particularly come into the chemists' province. The peculiar advantages which this form of medication offers with drugs such as the two last-named will be at once perceptible: they can be crushed in a handkerchief and inhaled, like a glass capsule, or taken internally, like an ordinary capsule. Of the animal tissues the thyroid gland, suprarenal capsules, and mammary gland were shown. These, protected by the airtight covering of the palatinoid, will keep free from ptomaines and septic germs for a long time. The usual range of bipalatinoids was shown, including the ferrous carbonate (Blaud's pill), phosphate, and arseniate. Lastly, we noticed an ingenious bipalatinoid containing a liquid in one side and a powder in the other—viz., mes. of creasote, and hypophosphites equivalent to $\frac{1}{2}$ teaspoonful of syr. hypophos. co.—the idea evidently being to free nascent phosphorus in the presence of creasote. Messrs. Oppenheimer also showed their soluble hypodermics. These are minute pellets prepared without compression, being merely moulded into shape. They can consequently be dissolved directly in the barrel of the syringe without previous tuburation. Aluminium cases containing syringe, needles, and hypodermics are also shown. The firm, as the British agents for the Pasteur Institute, Paris, and the Dublin Vaccine Institution, displayed the respective serums and lymphs of these houses. In connection with the former a number of venomous snakes—dead and bottled—were exhibited in connection with the new antivenim serum issued by this Institute.

JAS. WOOLLEY, SONS & CO. (LIMITED), of Manchester, have a varied and interesting selection of medicinal preparations and surgical apparatus. Among those of their goods which are of special pharmaceutical interest are *Emulsio petrolei et hypophosphitum* (Woolley), containing one-third

of its volume of purified petroleum in a state of fine division; *Liq. celloidin*, prepared in conformity with a recent suggestion by Dr. R. T. Williamson for application to cuts, puncture wounds, excoriations, &c.; and "Malto-Petrol," an inseparable combination of malt-extract with tasteless and odourless petroleum oil and the hypophosphites of calcium sodium, and potassium. Flexible gelatine capsules and granular effervescent preparations are also prominent at this stand, while the old favourite, "Woolley's Sanitary Rose-powder," remains as popular as ever.

MESSRS. THOS. CHRISTY & CO., of 25 Lime Street, E.C., have an extensive show, in which we found some novelties now exhibited for the first time. One of these is a cachet-apparatus (made in any of the six sizes in which this



appliance is offered for sale), closing three cachets at a time. This compact and effective machine is exceptionally useful for a chemist who may have to put up small quantities of cachets. One cachet can, of course, be closed just as easily as three, and chemists will find this a more convenient apparatus to have than the old-fashioned, single-closing one.

The litmus pencil which we noticed recently is also being shown for the first time. It has been well received not only by medical men, but by chemists generally. It is composed of chemically-pure litmus, which is inserted in an ordinary pencil, the red portion at one end and the blue at the other. It can be sharpened in the same way as an ordinary pencil, and for use is rubbed on a piece of white paper, and the paper then dipped into the solution to be tested.

Christia lint is becoming more and more used; the water-proof backing is very effective. Surgeons find it excellent for the application of liniments and other spirituous preparations. It is also chloroform and oil proof, in addition to being water and spirit proof.

"Neo Kola" is also being now shown for the first time. The demand for it, Messrs. Christy tell us, is increasing daily, not only in this country, but upon the Continent and in the colonies.

MELLIN'S FOOD (LIMITED), of Peckham, are located next to Messrs. Christy & Co. Their specialities are well known. They comprise Mellin's food for infants and invalids, a brownish granular powder, prepared from cereal grains in which the starch has been converted into its soluble products by the action of vegetable diastase; lacto-glycose, a preparation of the above food incorporated with fresh cows' milk; Mellin's food biscuits; and emulsion of cod-liver oil and hypophosphites ("Mellin"), obtained by a mechanical process of trituration of oil with solution of gum acacia and sugar. It contains 50 per cent. of oil, and may be had either with or without the addition of hypophosphites. It is readily miscible with milk, water, or other fluids.

All preparations in the exhibit of Messrs. PARKE, DAVIS & CO., of 21 North Audley Street, W., are interesting to the chemist. The fluid extracts and normal liquids shown in the stock packages are models of neatness. Tablet triturates in exact doses offer a convenient mode of accurately dispensing the more potent remedies. Pills of all varieties of coatings and colours, attractive syrups and elixirs, and specialities for which this house are manufacturing agents, are tastefully set out, interspersed with palms

and growing shrubs. "Taka-Diastase" has received a large amount of attention since we last noticed it. While extract of malt will continue to play an important part as a dietetic agent, its utility as a starch converter will always remain a limited one, as in the best extracts the amount of diastase is small and variable, and in certain conditions the fattening principles present may be a positive disadvantage. The most hopeful field for obtaining a comparatively pure and active diastase seems to be in fungus growths, and it is in this direction that Mr. Takamine made his investigations. His experiments have resulted in the production of a diastase which gives remarkable results in starch conversion. The firm also show the beef-products of the Mosquera-Julia Food Company, of which they are the sole agents. These include beef-meal, Mosquera beef-cacao, a breakfast and supper beverage consisting of equal parts of beef-meal, cocoa, and powdered sugar, and Mosquera beef-jelly.

JEYES SANITARY COMPOUNDS COMPANY (LIMITED), 64 Cannon Street, E.C., are making a fine show. The company's disinfectants are mostly well known; but there are among them some which have not previously been exhibited, and others which are of comparatively recent introduction. Among these is "Branalcane," a new remedy for diphtheria and infectious diseases of the mucous membranes and skin. It is a pink-coloured syrupy liquid, a concentrated solution of a boro-glyceride, combined with two non-poisonous antiseptic tar-products, and miscible in all proportions with water. It is claimed for branalcane that, alone among diphtheria-remedies, it develops a nascent antiseptic action when applied to the tonsils, and that the increased chemical activity inherent to such action intensifies the normal effects of the constituents of the remedy. Migraine, the double salt of antipyrine and caffeine, is not a new product, but it attracts a good deal of attention at the exhibition, and the same may be said of lysidine, a solvent of uric acid, said to be sixty times more powerful than carbonate of lithium.

The SANITARY WOOD-WOOL COMPANY (LIMITED) make their usual display of wood-wool wadding, tissues, and sponges, hygienic towlettes, &c. The wood-wool tissue consists of a continuous roll of wood-wool wadding between two layers of gauze. It is antiseptic, does not cause heat



and gives thorough drainage. Hartmann's catgut is put up in juniper oil and preserved in alcohol. The firm are now introducing sterilised catgut, put up in glass tubes prepared at a temperature of 165° C. Hartmann's guinea and half-guinea accouchement outfits have been frequently shown at these exhibitions.

ALLEN & HANBURY (LIMITED), of Plough Court, E.C., in addition to their "Perfected" cod-liver oil and tasteless castor oil, exhibit a series of foods for infants, particularly designed to suit the increasing physiological requirements. The "First Food" is a desiccated food prepared from cows' milk, so modified as to present the constituents in the same relative proportion as in human milk, and forming an excellent substitute for mother's milk when this is wanting or deficient. It is suitable for infants from birth to 3 months of age. At the latter age the "Second Food" is recommended. This is similar to "First Food" with the addition of maltose, soluble phosphates, and albumenoids, but free from unconverted starch, and gives an easily-assimilable food suited to the increasing digestive powers of the child. The foregoing are milk-foods, sterilised in the process of manufacture, and requiring the addition of boiled water only to furnish a sterile and perfect diet for young infants as near to mothers' milk as it is practicable to obtain. The malted, or "Third Food," is prepared from finest wheaten-flour in which the starch grains are ruptured and acted on by malt-extract. This food is to be mixed with milk, and the active diastase present so acts on the casein as to prevent the formation of hard, cheesy curds in the child's stomach; the

predigestion, however, is not carried to such an extent as to leave nothing for the infant's stomach to perform—a course likely to retard the development of the natural digestive powers. Many malt-preparations are shown at this stand, including the nerve-tonics bryo-hypophosphates and bynina-mara, very palatable substitutes for Easton's syrup, active malt extract taking the place of the inert sugar of the ordinary syrups. This firm also exhibit izar, the new antiseptic in surgery. The advantages claimed for it are a much greater germicidal power than pure carbolic acid, whilst, being non-poisonous, it is free from all danger, and can be freely used in irrigating internal abscesses, foul bladders, &c. It is also non-irritating. It does not form inert compounds with the albumin of the blood, as bichloride of mercury, nor does it numb the surgeon's fingers or injure his instruments. When used in the strength of only 1 in 200 it will destroy every variety of the most resistant bacilli in five minutes.

STEPHEN SMITH & Co., of Bow, London, E. have a stand of medium size, at which they show their Hall's coca wine, which has established its reputation long ago, and the *Keystone* brand of Liebig's extract of meat and malt wine. This is the only preparation of its kind (Messrs. S. Smith & Co. aver) made with the original Liebig Company's extract of meat, the only kind guaranteed genuine by the great Justus von Liebig. The wine is nicely put up, and is extremely pleasant to take.

NUTROA (LIMITED), of 54 Chiswell Street, E.C., has a malted food for infants and invalids for which three important advantages are claimed, viz.:—First, that it contains nearly 20 per cent. of digestible flesh-forming matter; second, that it contains over 10 per cent. of easily assimilable fat; third, that it is starch-free when prepared for use. Its price to the public is very low, and it is said to be meeting with success in use both with very young infants and with invalids—especially consumptives.

For infant feeding, "Nutroa" should be diluted with fresh cows' milk, the mixture being said to practically resemble human milk.

No food or medical exhibition is complete without BRAND & Co., of 11 Little Stanhope Street, W. They are also, of course, represented at Carlisle, where they make a speciality of their meat-juice, which is prepared by pressure in the cold, and which has lately been considerably improved, especially as regards its keeping properties. Concentrated beef-tea in skins, savoury meat lozenges, jellies and peptones of all kinds, are among the delicacies which make one long to be an invalid treated by Brand & Co.

THE "EXCEL" STERILISED MILK COMPANY, of London, claim that in their preparation all disease-germs are destroyed, and that the milk may be kept for an indefinite period. This claim is borne out by several testimonials from medical journals. The milk is said to be the pure English product, and is regularly used by the Union Line and other well-known steamship companies. It is also supplied to several London hospitals. The milk is heated under steam-pressure to over 212° F., and the bottles are hermetically sealed in the sterilising-chamber, this operation taking place under a patented process.

ARMOUR & Co., of Chicago, and 59 Tooley Street, S.E., show a fine series of their preparations. The extent and resources of this great firm, the facilities which their packing and killing factories supply for obtaining the material in a perfectly fresh state and in a considerable quantity, and the scientific organisation which they are able to bring to bear on the production of their long line of preparations, have enabled them to produce a series of preparations of great excellence and moderate price. Among the articles shown were:—Pepsin in insoluble powder, granular, scale, and soluble powder form of the standard strength, 1:3000 U.S.P., guaranteed five times B.P. strength; these pepsins are odourless, non-hygroscopic, free from peptone. Glycerole pepsin, a concentrated solution of pepsin in glycerine; 10 minims represent 1 gr. of Armour's pepsin, or 5 gr. of pepsin B.P.; and pancreatin-powder, prepared from fresh material, and containing the ferments of the pancreas. The preparation of the newer animal-remedies has been taken up by this firm. They show desiccated thyroids, prepared in a sterilised laboratory, from fresh, healthy glands dried and degreased; 6 gr. equal one gland; desiccated thyroid-tablets (5 gr.), in bottles containing 100 tablets; each

tablet is equivalent to one-third of an entire healthy gland; and elixir thyroid, a palatable glycerine solution of sheep's thyroids.

Beef-juce is an article which in the past has not been offered by Armour & Co. in Europe. They show it now. It is claimed to be prepared by cold expression, and under test is found to be rich in albumen.

Messrs. Burroughs, Wellcome & Co. are the European and colonial agents for FAIRCHILD BROTHERS & FOSTER, of Philadelphia. For this firm they show such standard products as pepsin, zymire, and the "tabloids" made from them; panopepton, a complete peptone food, containing both pre-digested beef and flour, and a perfect combination of concentrated predigested albuminoids and carbohydrates. Pepsencia is a solution of the active digestive ferments of the gastric glands of the pig and calf, prepared by direct extraction. It is a powerful digestive of milk albumen, fibrin, and gelatin. Peptogenic milk-powder is an important addition to the list of Fairchild products. Added to diluted cows' milk, it converts it into a liquid of a similar character and digestibility to mothers' milk. Glycerinum pepticum, too, deserves a wider recognition. It is freshly extracted from the gastric membrane of the pig, and contains no trace of mucous or other contamination. For the latter reason it is excellent in aroma, and mixes freely, without precipitation or cloudiness, with all media in which pepsin is usually administered. For extemporaneous mixtures, and as a basis for wines, elixirs, &c., it will be found useful.

S. KUTNOW & Co. (LIMITED), 66 Holborn Viaduct, E.C., show their effervescent Carlsbad powder, which is pleasant and palatable and without any drastic or nauseous influences. The same firm exhibit Kutnow's anti-asthmatic powder and cigarettes of pleasant aroma. The latter are pleasing to smoke, and burn regularly with a firm ash.

Pharmaceutical Society of Great Britain.

JULY EXAMINATIONS IN EDINBURGH.

MINOR.

ONE HUNDRED AND EIGHTY-FIVE candidates were examined 124 failed, and the following 61 passed:—

Aspinall, Thomas
Atkins, William
Beattie, Alexander Gordon
Bentley, Charles Saville
Black, William Reynolds
Boyle, Joseph
Bradshaw, James Ernest
Burns, John
Butler, Richard
Coates, Harold Kinsella
Crampton, Walter
Crawford, George
Davies, Richard
Davison, John Lyle
Dewar, John William
Dixon, Charles Robert
Emett, Thomas
Ewart, Samuel
Fish, William Sadler
Fletcher, Herbert Parker
Forrester, Alexr. Harrow
Gordon, Richard Munro
Harby, William
Henderson, Andrew W.
Henderson, William
Hitchon, Charles
Holdsworth, Fredk. Herbert
Hollingworth, Joseph Henry
Holt, Henry
Holton, John Charles
Hughes, William Griffiths

Johnson, James Cairns
Lyle, James Alexander
McLaren, James Bryce
MacLennan, Roderick
Mallaband, William Henry
Marlor, Thomas
Melville, David Gordon
Mennie, Donald
Moore, William Arthur
Newcombe, Thomas
Pae, Archibald Thomas
Page, Henry Skikelthorpe
Peace, Ira
Robertson, George Farrie
Rutherford, Thomas
Schofield, Harry
Simmons, Edward Harry
Simpson, Bertram
Sloan, James
Stewart, Alexr. McIntosh
Strong, Alfred Ernest
Taylor, John Ratcliffe
Thomas, Lewis Edwin
Thomson, Thomas
Toy, Hubert George
Wallace, Alexr. Profett
Wallace, Hugh Gray
Watt, Marshall Keith
Westland, Robert
Woodward, Harrison

Legal Reports.

MATURING ANGOSTURA BITTERS.

ON July 24, in the Chancery Division, Mr. Renshaw, Q.C., mentioned to Mr. Justice Kekewich the action of Siegert v. Gillespie, and asked *ex parte* for an extension of the interim injunction his Lordship had granted restraining the sale of certain cases of alleged spurious Angostura bitters. Mr. Bramwell Davis, Q.C., for the defendant, asked for time to enable answers to be filed to the affidavits which had been just delivered. The goods, he added, were at the wharf, where they had been for the last ten years maturing. (A laugh.) Mr. Renshaw: I rather suspect that it is because defendant has been unable to dispose of them.

Meantime, observed his Lordship, amidst renewed laughter, I suppose they have been acquiring strength and virtue. Eventually the matter stood over for a week, with a view to some arrangement being made for an early trial after the Long Vacation.

APOLLINARIS WATER.

MR. JUSTICE KEKEWICH had before him, on July 24, the case of Saxlehner v. the Apollinaris Company (Limited), in which Mr. Warrington, Q.C., said he had a motion to make, but he believed Mr. Warrington, Q.C., who appeared for the defendant company, wished that it should stand over for a fortnight. Mr. Warrington (interposing) explained that he desired two months—not two weeks—time. They would have to go to Buda Pesh, and it might be also to America, for their evidence, and he thought it could not be accomplished under two months. The company were solvent, and were ready to keep an account, or do anything that was reasonable in the case; and meantime there were proceedings going on before the Controller—all which considerations were in favour of his application. In the result the case stood over.

A MEDICAL-PARTNERSHIP ACTION.

IN the Chancery Court, before Mr. Justice Stirling, on July 24, Mr. Graham Hastings, Q.C., in the action of Henry & Rowe v. Farr, asked his Lordship, in effect, to restrain the defendant until the trial of the action from interfering with the plaintiffs in the carrying on of the business of physicians, surgeons, accoucheurs, and apothecaries, at 175 Kennington Road, or within two miles thereof. It appeared, in a hearing extending over some two hours, Mr. Buckley, Q.C., appearing for the defendant and resisting the application, that in 1895 defendant took the plaintiffs into partnership on their bringing in 1,000l., he to take one-half the profits and they one-quarter each. It was complained that by a breach of the partnership-deed plaintiffs were entitled to buy out the defendant in the defaults he had made in attendance on the business. Mr. Justice Stirling, having heard the arguments and evidence on affidavits, said the case turned on clauses in the partnership-deed, to the effect that if defendant absented himself from the business for two hundred days within a specified period the partners might take over the business on an arranged scale of payment. He did absent himself for two hundred and thirty days, but it was his case that it was in consequence of his illness; and it seemed to him (the Judge) that to satisfy the clause he must find that the absence was wilful. There was also a provision as to holidays which it was said defendant had broken, and so had also brought himself within the forfeiture clause. But he did not think that, at present, at all events, the plaintiffs had made out their case, and on the balance of convenience and justice he came to the conclusion that if he granted the injunction it might work great injustice to defendant, whilst if he refused it it would not at all prejudice the rights of the plaintiffs at the trial, and it had not been suggested that the parties could not continue to work together. He, therefore, refused the motion.

PENALTIES UNDER THE PHARMACY ACT.

AT the Sheffield County Court on July 23, before Judge Waddy, Q.C., the Council of the Pharmaceutical Society sued

Mr. E. J. Douthwaite, who carries on business at the Ellesmere Drug-stores, for three penalties under the Pharmacy Act. Mr. E. Vaughan Williams represented the Society, and Mr. A. Muir Wilson appeared for the defendant. Plaintiffs sought to recover three penalties of 5*l.* each from the defendant, two of the sums being for "keeping open shop for the retailing, dispensing, or compounding" of certain poisons contrary to the provisions of the Act; and the third for "taking, using, or exhibiting the name or title of chemist" contrary to the statute.

Mr. Vaughan Williams said that in May last Mr. A. Foulds, of Manchester, was sent to Sheffield by the Society, and purchased at the defendant's shop a bottle of Powell's balsam of aniseed, and, later, a bottle of Mrs. Winslow's soothing-syrup. Both these articles contained morphine, one of the poisons scheduled under the Act. After the purchases had been made a letter was written by the Society's solicitors to the defendant, who wrote back as follows:—"Since you pulled me up on the former occasion I have been most particular not to get into your power again. I can unhesitatingly give you a most emphatic denial to the charges you make. I neither keep nor dispense any scheduled poisons, and have never assumed the title of chemist. You are at liberty to take any proceedings you think fit, and I shall instruct my solicitor." The "previous occasion" referred to was during the previous year, when certain demands were made upon the defendant by the Society, and he paid the penalties asked for. The third penalty sought was for using the name of chemist. Upon one of the purchases which were made there was a small label, upon which appeared "Spurr, Chemist." Mr. S. W. Spurr was the owner of the shop previously, but he died in 1893. Over the doorway of the defendant's shop in Ellesmere Road, which was called Ellesmere Road Drug-stores, was the sign "E. J. Douthwaite, late Spurr." This, and the label on the bottle, was clearly using or exhibiting the name of chemist within the meaning of the Act. A handbill of the defendant's, which was received by the Society's solicitors in connection with the previous proceedings, read as follows:—"E. J. Douthwaite, 12 years manager for S. W. Spurr, chemist and druggist, of 3 Ellesmere Road, begs to inform his numerous friends," &c.

Formal proof of the purchase and of the defendant's ownership of the business having been given, Mr. E. J. Eastes, F.I.C., was called, and stated that he had analysed the contents of the bottles already mentioned. In the Powell's balsam he found $\frac{1}{2}$ gr. of morphine, and in the soothing-syrup $\frac{1}{12}$ gr. These quantities were dangerous. In cross-examination witness said that he had known both these medicines for many years, as long as he could remember. They were commonly known as patent medicines, but were not properly so called. They were really proprietary medicines.

For the defence Mr. Wilson called no witnesses, but first endeavoured to prove that the plaintiffs had failed to strictly prove that the defendant was the Douthwaite who carried on business in Ellesmere Road. Failing in this, he contended that under section 16 of the Pharmacy Act the articles sold by the defendant were exempted as patent medicines. Mr. Wilson went on to say the Society had probably taken the proceedings at the instance of some rival shopkeeper, who found that his business was going elsewhere.

His Honour objected to such a remark, asking if that was a point to be placed before him.

Mr. Wilson: Well, I have occupied very little time of the Court so far, and I think I should be allowed to say what I have to say without interruption.

His Honour said he had listened with great patience.

Mr. Wilson hoped it had needed no patience to listen to him. He had not been speaking very long, but he had been continually interrupted, and this, he thought, was a little bit hard.

Mr. Williams, in reply, quoted cases showing that the exemption did not extend to these articles, which were not patented, nor to medicines the patent for which had expired. In reply to the Judge, Mr. Williams said he was told there were not six medicines in the country which had been patented. They were extremely rare and obsolete. He instanced as one Kay's essence of linseed. In regard to

this it had been held that the patent having expired the article could not be sold by unregistered persons.

His Honour: Although you have made out your case on that point I cannot find out the sense of putting in these patent medicines at all. Why should they be exempted?

Mr. Williams pointed out that before a patent was granted, an article had to be submitted to the authorities, and its contents made known. There was consequently a safeguard to the public.

His Honour summed up at great length, saying that though he found the cases fully proved, and also that he had no option but to inflict the full penalties, he did not think that the case was a very bad one, morally not nearly so bad as if defendant had been convicted of dealing in poisons pure and simple. He hoped his remarks would be conveyed to the Pharmaceutical Society.

Mr. Wilson offered payment at 4*s.* a month. His client, he said, was not the owner of the shop, but only a servant in receipt of small wages.

Mr. Williams pressed for immediate payment, with costs.

Mr. Wilson again pleaded for time, and was backed up by his Honour, urging that the case was not morally a bad one. Mr. Williams, however, was persistent, and would not accept any compromise.

Mr. Wilson: Really, is this the Pharmaceutical Society or a society who want to squeeze the blood out of a poor man? I never knew a powerful Society meet a case as we are being met to-day. They have now got their pound of flesh, and they want to squeeze it out of this poor fellow by Wednesday next; it will be at least 26*l.* or 27*l.* I ask the Court to protect me.

Mr. Williams pointed out there was someone behind the defendant.

His Honour suggested 5*l.* in a month, and 15*s.* a month afterwards; but Mr. Williams said as far as he would go was to accept an order of 5*l.* a month, the whole thus being payable in three months.

The order was made accordingly, but Mr. Wilson intimated that his client would file an application for an administration order.

[Mr. Douthwaite has written to a Sheffield paper complaining of his counsel's argument that the shop did not belong to him, and also of his announcement that he would file an administration order. He says the business is his and he has no intention of filing an administration order, but shall pay the penalties in full.]

TRADE SECRETS AND THE BUILDING ACT.

MR PAUL TAYLOR was occupied for several hours on July 24, at the North London Police Court, in hearing a case in which Messrs. Brooke, Simpson & Spiller (the Atlas Dye-works), Hackney, were summoned by the District Surveyor for not giving notice under the Building Act of the erection of certain buildings at their works. Mr. C. V. Young appeared for the complainant, and Mr. Glenn (author of a standard work on the Building Act) for the defendants. The evidence showed that the defendants had been extending their premises, and had employed a Mr. Dabbs as their builder. He had given the statutory notice of the work he was carrying out, and the district surveyor had had his fees. But there were certain furnaces and retorts which the firm had erected by their own men, and they had refused to allow the district surveyor to come in and see what they declared to be a trade secret in the construction of these. All the work was carried out satisfactorily, but the surveyor had taken out the present summons for failing to give the prescribed notice. The allegation was not disputed, but Mr. Glenn pleaded exemption, not on the ground of trade secrets, but because of the furnaces and retorts in question being out of the limits of the Building Act—viz., that they were more than 30 feet from the nearest building, were not more than 30 feet high, and that the furnaces were 8 feet from the nearest retort. Mr. Young endeavoured to override this suggested exemption by saying the chimneys of the furnaces were more than 30 feet high; but these, Mr. Glenn argued, and Mr. Paul Taylor allowed, could not be classed as buildings, but only as portions of buildings. Then Mr. Young fell upon a "building" which was less than 30 feet from the retorts—viz., a corrugated-iron shed—but this, again, Mr.

Glenn contended (and the Magistrate upheld him) was only a "structure." Mr. Paul Taylor said the surveyor's claim must fail. Mr. Young replied that it was a most extraordinary thing that there was no direct definition of what was a "building" in the Building Act. And, again, whilst in the Act exemption was only allowed in the sixth and seventh parts, exemption was now allowed in the thirteenth part because there were decided cases in point. Mr. Paul Taylor answered that the Acts of Parliament and decided cases were the accepted guides. The defendants had kept themselves within the meaning of the Act and decided cases, and therefore must succeed. A "building," as he took it, was one of bricks and mortar; a shed composed of sheets of corrugated iron he would class as a structure. As he had already held the chimney (which in this case was between 50 feet and 60 feet high) was but a portion of the building, he could only repeat that, according to the evidence, the defendants were within their rights. Judgment accordingly.

MEDICINE-LICENCES AND CHARIOTS.

AT Newbury, on July 24, Frederick Hedges, trading as "Santor Sequah," who had been accustomed to sell medicines from a gaudily-decorated car, was summoned by the Excise for selling a preparation which did not bear the Inland Revenue label, and for selling medicine liable to stamp-duty without a licence. The medicine in question was Indian herbal cough-tablets. Mr. Dennis, solicitor from Somerset House, prosecuted, and urged that the words on the box, "Prepared only by Santor Sequah" constituted a claim to proprietorship which rendered it liable to stamp-duty. Edwin Butler, Excise officer, Newbury, proved the purchase of the box of tablets produced at the hotel at which "Sequah" was staying. He paid 6d. for it. The defendant declined to divulge his real name. "Sequah" made a long explanatory statement in extenuation of the offence. He contended that it was not a proprietary article. The question was tried at Durham four years ago, when the case was dismissed. The label he now used had been sanctioned by the Somerset House authorities; but he regretted that he had lost the letters he had received from them. The Inland Revenue people, he complained, had refused to grant him a licence to sell medicine from his gilded car. Therefore, what was he to do? Mr. Dennis pointed out that the case to which "Sequah" had alluded was in reference to oils, and those proceedings were in respect to a Mr. Leslie, who was at that time defendant's partner. The question as to this particular label had never before been raised in the courts. The Mayor expressed the opinion of the Magistrates that the cough-tablets were proprietary articles, and they consequently imposed a fine of 2l. 10s. A similar penalty was inflicted for selling the tablets without a licence. The 5l. was immediately paid.

PROSECUTIONS UNDER THE DENTISTS ACT.

THREE persons were summoned before the Cardiff Stipendiary (Mr. T. W. Lewis) on July 28 for unlawfully using a description implying that they were registered under the Dentists Act. The first case taken was that of Mr. Templar Malins, of Woodville Road, who was charged with having used on his shop-window the description "Popular Dentistry." Mr. Malins, was represented by Mr. A. Jackson, solicitor.

Mr. Belcher, solicitor, who conducted the prosecution, said the summons in this case was for using a description implying that defendant was registered under the Dentists Act or was specially qualified to practise dentistry.

The Stipendiary: They are two separate offences. Do you charge the defendant in the alternative?

Mr. Belcher: Yes.

The Stipendiary: Then the summons will have to be amended.

This having been agreed to by the defendant's solicitor,

Mr. Belcher said there was no material dispute about the facts. Defendant carried on business as a chemist and druggist, but in addition he had on his shop window the description "Popular Dentistry," thereby implying that he was qualified to act as a dentist. Acting upon instructions, a person visited the defendant's shop, and said something about his teeth, whereupon he was handed a card, giving a "definite table of prices for artificial teeth." Mr. Belcher read

these prices, which the card stated "included all charges for preparatory operations," and that fit and appearance were guaranteed; then it went on to state "Extractions with ethyl chloride (painless), 2s. 6d.; with nitrous-oxide gas (insensibility), 5s." The Stipendiary would see how serious a matter this was when a person who was unqualified held himself out as a dentist, and invited the public to place themselves under his treatment with the application of gas. The case for the prosecution rested entirely upon the defendant's description "Popular Dentistry" and the issue of that card.

Mr. Jackson admitted the facts as stated, but he said there was a case in which it was held that a person who had described himself as a veterinary chemist did not mean the public to imply that he was specially qualified to practise as a veterinary surgeon; and he submitted that the defendant in this case, being a chemist and druggist, did not wish it to be implied that by the use of the term "popular dentistry" he was registered under the Dentists Act.

The Stipendiary did not think there was any analogy between the two cases. A person who described himself as a veterinary chemist might mean that he sold drugs which might be used for veterinary purposes; but a man who used the term "popular dentistry" might be supposed to mean that he was qualified to extract and repair teeth.

Mr. Jackson would not press that contention. He wished, however, to urge, in mitigation of penalty, that on May 9, before the date of this alleged offence, defendant printed 20,000 circulars for distribution, in which it was clearly shown that he did not in any way attempt to mislead the public. He therein stated distinctly that he was not a dentist, that he was not registered under the Dentists Act, and that he was not specially qualified to practise as a dentist.

Mr. Belcher said he was told this circular was issued after the offence.

Mr. Jackson said the printer was present, and could speak as to the date. If that circular were printed and issued before the offence, it went a long way in mitigation. Another form was also printed by the defendant, which anyone coming to him to have artificial teeth put in was asked to sign. That form set forth that the person coming to him knew him not to be a dentist. These things showed that the defendant, in putting the description "Popular Dentistry" on his shop-window, had no wish to mislead the public.

The Stipendiary said it simply amounted to this—that the defendant, in practising dentistry, wished to protect himself from being thought to be duly qualified under the Act.

Mr. Belcher said his own view was that these circulars aggravated the offence.

The Stipendiary said he would neither treat the circulars as aggravating or ameliorating the offence. By the use of the term "popular dentistry," taken in conjunction with the card, defendant had certainly held himself out to be specially qualified to practise dentistry, and he would be fined 5l. and costs, together with the advocate's fee, 2l. 2s., or, in default, one month's imprisonment.

THE next case was that of G. F. Bamber, of Castle Road, who had used the description "Artificial-teeth Manufacturer," thereby implying that he was qualified to practise dentistry. Mr. Lewis Morgan appeared for the defendant.

Mr. Belcher said in this case defendant occupied a private house in Castle Road. Outside there was a case of artificial teeth, and on it these words, "Bamber. Teeth extracted. Prize medal. Artificial teeth." A person went inside and was handed a card giving the price of a set of teeth. Defendant informed the public on this card that "he is prepared to supply artificial teeth equal to natural ones, and to fit them without pain, extraction, or the use of gas." "These teeth," he adds, "are perfect for eating, speaking, and life-like appearance. They embody all the latest mechanical improvements, and ensure natural ease and perfect comfort, allowing full enjoyment of taste. They can be produced by the improved steam process while patients are waiting, and are fitted without springs or unsightly fastenings by atmospheric suction."

The Stipendiary (to Mr. Morgan): Do you admit this card?

Mr. Morgan: Yes.

The Stipendiary: Do you say it does not amount to the

defendant holding himself out to be qualified to act as a dentist?

Mr. Morgan: Yes.

The Stipendiary: What is the popular acceptance of the term "dentistry"?

Mr. Morgan said that was what the Court had to consider. The Act was a penal one, and must be construed strictly.

The Stipendiary: Yes, and in construing it we must deal with the term "dentistry." That (he took it) was the art of repairing, preserving, or extracting natural teeth, and inserting or fitting artificial teeth. Did the defendant in this card hold himself out as a person specially qualified to perform these operations?

Mr. Belcher said there was one important sentence in this card which he was coming to when he was interrupted. Defendant said "he had paid great attention to the nature and physiology of the mouth, which, joined with the extensive practice he has had in this branch of science, rendered him capable, on examination and inspection of the mouth, to give the greatest assistance that art can accomplish in restoring the natural expression of the face." There was nothing wrong in a man supplying a dentist with artificial teeth, but when the defendant issued a card like this, he submitted that he held himself out as a person specially qualified to practise dentistry.

Mr. Morgan said it was for the prosecution to prove that this card misled the public, and caused them to look upon the defendant as a person specially qualified to act as a dentist. By the simple use of the term "artificial-teeth manufacturer," he submitted that no one would be led to believe that the defendant was specially qualified to act as a dentist.

Mr. Belcher said it had been held by one of the Judges of the High Court that these descriptions must be taken in a popular sense, and not in a technical sense.

The Stipendiary said he considered the defendant, on this card, held himself out to be a person extra-specially qualified; in fact, defendant held himself out to possess the highest qualifications for performing all these operations. He would be fined 5l.—

Mr. Belcher (interrupting): There is a previous conviction in this case.

The Stipendiary: Can you prove it?

Mr. Belcher: No, but I have a report of the case, and also a letter from the Magistrates' Clerk. The case was heard at Barrow-in-Furness in 1894. I think it only right to mention this.

The Stipendiary (to Mr. Morgan): Do you dispute that?

Mr. Morgan: I know nothing about it.

The Stipendiary then fined the defendant 20l. and cost's, or two months' imprisonment in default.

Mr. Morgan: Do you take that as a previous conviction?

The Stipendiary: Yes. It is asserted on one side and not denied on the other, and therefore I think it good ground to act upon. If you like I will withdraw the adjudication, so that you can make inquiries.

Mr. Morgan would not ask his Worship to do that.

The Stipendiary: Is the defendant present?

Mr. Morgan: Yes.

The Stipendiary: You can ask him the question.

Mr. Morgan, however, did not press the point further, and the fine was recorded with the addition of 2l. 2s. for advocate's fee.

N. A. GIVOVIC, of Queen Street, was next charged with having used the term "American Artificial Teeth Company," implying that he was specially qualified to practise dentistry.

Mr. Jackson, who appeared for the defendant, said he had documents to show that the defendant was properly qualified to act as a dentist both in California and Austria.

Mr. Belcher said he was not aware of that. If the defendant possessed any foreign degree which was recognised by the Dentists' Association, it was competent for him to get registered.

The Stipendiary thought that was a matter that should be inquired into. He adjourned the case for a fortnight in order that Mr. Belcher might examine the qualifications which defendant alleged he possessed.

ADVERTISING A CHALYBEATE.

In the action of the Mercantile Agency Company (Limited) v. Fitwick Chalybeate Company, the plaintiffs, a Leadenhall Street house, on Tuesday last appealed to the Master of the Rolls and Lords Justices Kay and Smith for judgment or a new trial after a verdict and judgment by Mr. Justice Grantham and a common jury for the defendants, who carry on business in the Borough.

It appeared, from the statement of Mr. Robson, Q.C. (with him Mr. Lynch), for the appellants, that, as colonial merchants and the owners of an advertising colonial guide, one of their canvassers obtained an advertisement from defendants to be inserted for twelve months, and paid for one-half in cash and the other half in defendants' chalybeates, the charge being twice the amount plaintiffs would take in goods. The order was taken on a printed form, under which plaintiffs refused to accept the goods tendered by defendants, on the ground that the bottles were labelled "For export only," and that, though the plaintiffs intended these goods for their export trade, the impression prevailed abroad—whether rightly or not—that goods so labelled were inferior to those prepared for home consumption. The defendants, in answer to the claim, set up an agreement or understanding with the canvasser, which, appellants submitted, if he ever made he was unauthorised to make, and that, where the contract was reduced to writing or printing, parole evidence varying its terms was inadmissible. After hearing counsel for the appellants on these lines, and submitting as against a verdict for defendants that plaintiffs were entitled to recover the full amount of their charge against them, the Master of the Rolls, without calling on the other side, said he thought the appeal should be dismissed, and the findings of the jury below left undisturbed, seeing that they were entitled to come to the conclusion they did after hearing all the facts, and in view of the ambiguity of the word "goods" in the contract, requiring parole evidence to be let in to prove what the "goods" were. The Lords Justices assenting, the appeal was dismissed accordingly.

Gazette.

PARTNERSHIPS DISSOLVED.

Adams, R., and Adams, T. J., oil and colour merchants, dealers in chemicals, druggists, drysalts, varnish manufacturers, importers and exporters, Birmingham, under the style of R. & T. J. Adams.
Coggins, T. C., and Malabar, R., civil engineers and contractors, Liverpool, under the style of the Patent Liquid Purifying Company.
Wright, W., and Olive, M., chemical-manufacturers, Otley, under the style of William Wright & Co.

THE BANKRUPTCY ACTS, 1883 AND 1890.

RECEIVING ORDER.

Swain, John William, & Co., Cardiff, oil-brokers.

ADJUDICATIONS.

Aikman, Alfred, Kingston-upon-Hull, surgeon.
Putz, Helen (trading as F. J. Putz & Co.), Great St. Helen's, E.C., and Grove Road, Willesden Green, N.W., chemical and general merchant.
Snowdon, John, Darlington, chemist and druggist.

In the advertisement of the Tuson Disinfectants Company (Limited), which appeared on page 58 of our issue of July 18, the quotation commenting on their specialities gave the old address of the company at Marsh Gate Lane. Their present address in Crown Wharf, Dace Road, Old Ford, E.

MESSRS. MAY & BAKER (LIMITED), manufacturing chemists, of Garden Wharf, Battersea, announce that Mr. J. A. Barnicott, late director of Messrs. Johnson & Sons (Limited), 23 Cross Street, Finsbury, and Mr. H. Wood Smith have joined the board of directors of their company. Mr. Barnicott will devote himself to the commercial side of the business, and Mr. Smith will continue the supervision of the manufacturing department, to which he has for some years devoted his time.

Trade Reports.

42 CANNON STREET, E.C., July 30

Our Smyrna correspondent wires on Wednesday night:—
 "The sales of opium in this market since last Thursday have been 120 cases. Fair *Manufacturing* has been sold at 10s., selected at 10s. 2d. per lb. These prices were barely equal to the highest rates paid last week, but the market closes with an excited feeling, and a further advance appears to be impending."

Our New York correspondent, telegraphing on Thursday afternoon, states that *Peru balsam* is quoted at \$1.75 for genuine quality. Fair *Vera Cruz jalap* offers at 10s. per lb., and best *Peppermint oil* in bulk at \$1.50. All these articles are weak and tending lower. *Sassafras oil* is very scarce, and has advanced to 40c. per lb. *Opium* excited, with a further advance of fully 5 per cent., \$2.50 being now quoted for fair manufacturing. *Mexican sarsaparilla*, owing to heavy arrivals, has become decidedly weaker. *Honduras root* remains strong. The market for *Senega root* is strong, owing to continental inquiries. *Refined spermaceti* very firm at the prices last quoted.

After some considerable delay, the drug-brokers have now come to a decision with regard to the arbitration clause in Contracts, which has so long been at issue between themselves on the one side, and the Drug Club and the Chemical Section of the London Chamber of Commerce on the other. After a non-official conference between Messrs. Alfred Lambert, Price, and S. Figgis, the Committee of the Produce Brokers' Association discussed the question, and communicated their decision in a letter to Mr. Barron, as President of the Drug Club. The brokers decline to accept the demands of the druggists, but they offer that in future it shall be a condition of sale that an expert may be called by any party going to arbitration, and shall be heard by the arbitrators before the decision is given. The expert is to be paid for his services. Hitherto it has been the custom to allow an expert to be called in on appeal only. The druggists regard this offer as of no value, and will, after the holidays, consider what course they shall adopt. The brokers, on their side, say they are animated by a sincere desire to arrive at an understanding, and that if the original demand of the druggists were submitted to the Association at large, as it must before it could be accepted, it would be certain to be rejected. Mr. Barron is requested in the letter to communicate its contents to the Chemical Section of the London Chamber of Commerce, with whom the brokers evidently do not think it necessary to correspond direct.

ACETANILID still tending higher, in consequence of the continued increase in price of raw material. There does not appear to be much, if anything, offering below 1s. 2d. per lb. now.

ACIDS.—*Citric acid* firmly held at 1s. 2½d. per lb. from makers and second-hand holders. There is little offering for prompt delivery. *Tartaric acid*, steady at 1s. 3d. per lb. for *Laves'* (B.P.) and 1s. 2d. for foreign brands.

ARSENIC remains firm at 23l. 10s. per ton for best white *English powder* in quantity.

ASAFOTIDA.—Firmly held, especially for good quality. Holders ask as much as 70s. per cwt. for nice almonds.

BALSAM TOLU is still tending higher, from 2s. 8d. to 2s. 9d. per lb. being now asked for genuine quality.

CAMPHOR (CRUDE).—Quotations for shipment have been rather easier, August-October ranging from 90s. to 95s. per cwt., c.i.f., for *Formosa camphor*. There is no demand in

this position, but on the spot and for near at hand a fair inquiry still exists, and prices remain steady if not firm. At the close the market is again firmer, with a sale of 200 piculs *Formosa*, August-October, at 100s., c.i.f.

COCAINE.—After an unusually prolonged period of quietness the cocaine market has been somewhat disturbed again by a general advance in the hydrochlorate, which is now quoted at 13s. 7d. per oz. for lots of 100 cz. or more, 13s. 9d. for 25 to 100-oz. lots, and 14s. per oz. for smaller wholesale quantities in bulk deliverable within three months. Bottles are quoted 3d. per cz. extra. The advance was made by all the manufacturers together, with the exception of one of the Germans, whose price has for some time been above his colleagues, and remains so still, 14s. 9d. being his bottom quotation.

COLOCYNTH.—Fine *Turkish apple* is very scarce, 3s. per lb. being now required.

CREAM OF TARTAR has further declined to the extent of 1s. to 1s. 6d. Best white *French crystals* can be had at 92s. 6d.; powder at from 95s. to 97s. per cwt.

GLYCERINE is exceptionally firm and in good demand. It is said that 71s. per cwt. has been paid for English double-distilled, s.g. 1.260, and for foreign of the same kind as much as 74s. has been paid to the manufacturer. The tendency of prices is still towards a further advance.

GUM ACACIA.—So-called insoluble *Persian gum* has become rather steadier in price owing to the taking out of the market of a considerable quantity. Good pale selected is quoted at 22s. to 23s., ordinary to good sorts at from 12s. to 16s., and fair reddish picked at 15s. per cwt.

IPPECACUANHA firmly held for all varieties. For fair sound *Rio root* 6s. per lb. is asked, and for *Cartagena* 5s. per lb., both figures marking a slight advance on the recent auction rates.

MENTHOL is weak. One dealer tells us that he has made sales at 9s. 9d. per lb. on the spot, but that quotation could certainly be shaded from other holders. For prompt shipment the quotation is 9s. per lb., c.i.f., and for September-October shipment 8s. 6d. per lb., c.i.f., is asked.

MORPHIA.—A further advance in price, which has been threatened all the week, was announced to day, powder being now quoted at 5s. 4d., crystals, 5s. 6d. per oz. for 100-oz. lots. This is an advance of 4d. per oz. *Coclea* has also again been raised from 6d. to 9d., the present quotation being from 11s. 9d. to 12s. 3d. per oz., according to quantity. A good business has been done in opium alkaloids this week, and it is said there is much less in second-hand than was believed.

OIL (CASTOR).—*French oil* is again quoted higher—viz., at 22s. for firsts, and 21s. 6d. for second pressings in barrels, f.o.b. Marseilles. Medicinal oil in cases or barrels offers at about 28s. per cwt., landed. *Italian oil* is also higher on account of the alleged scarcity of seed, from 31s. 3d. to 32s., c.i.f., being now asked.

OIL (COD-LIVER).—Our Bergen correspondent writes, under date of July 25:—"Business is still very quiet in our market, and, owing to the summer season, the export business here is all but dead. The quotations remain unchanged, at 165s. f.o.b. for non congealing new Lofoten, and 160s. f.o.b. for ditto Finnmarken. The export from Bergen to date this year are 2,370 barrels, against 2,800 barrels at the corresponding time in 1895. In London the market is perhaps a shade firmer; some of the importers now ask 170s. c.i.f., whereas a few days ago they would not have asked more than 165s. c.i.f. per barrel. Newfoundland of the new season, which is just arriving, was sold some time ago on contract at 5s. per gallon. At present, however, there is nothing to be had below 5s. 9d. to 6s. per gallon.

OILS (ESSENTIAL).—The new prices for *Otto of rose* have not yet been fixed, but they are expected almost daily. It should be remembered, however, that in 1894 the leading houses made no declaration of their new rates until the beginning of October. *Star-anise* oil is rather firmer this week, with spot sales at 7s. 6d. per lb. New-crop for October-December shipment may possibly still be had at 5s. 11d., c.i.f. July-August has sold at 6s. 5d.; 6s. 6d., c.i.f., is asked. In Trieste there is a good demand for *Dalmatian*

rosemary oil, of which the new crop is now being offered, the quotation being from 180s. to 182s. 6d. per cwt., f.o.b. Trieste. *Cassia oil* is still quoted at 7s. 5d. to 7s. 6d. per lb. for 70 per cent. to 75 per cent. on the spot. For shipment there are no reliable quotations at present. *Citronella oil* unchanged, at 1s. 4d. to 1s. 6d. per lb. on the spot, according to packing. It is said that for shipment at the end of the year there are sellers at 1s. per lb., c.i.f. terms. *Lemongrass oil* offers at 2½d. to 2¾d. per oz. on the spot. For shipment, August-October, some little business has been done at 1¾d. per oz., c.i.f.

OPIUM remains extremely firm, with a higher tendency, and prices do not show a further advance on last sale. A good business has been done in *Manufacturing* qualities for which up to 9s. 9d. per lb. has been paid. *Soft-shipping*, on the other hand, is, perhaps, rather easier. *Tokat* may be had at 11s. 6d., *Malatia* at 12s. to 12s. 6d. For fine *Druggists'* opium 10s. per lb. is required, while for seconds 9s. 3d. to 9s. 6d. is asked. Good and fine *Persian* gum is very firmly held at prices which buyers are at present unprepared to pay. In ordinary grades, however, a fair business has been done, but the stock of these is now falling very low.

ORRIS.—In Italy the market is steady, best picked *Florentine* being quoted at 65s. to 66s. per cwt., and sorts at 57s. to 57s. 6d. per cwt., c.i.f. At these figures business is said to have been done. It is expected that sales of new crop root for forward delivery will shortly be made.

POPPY-HEADS.—The crop in Belgium, like that in England, has been small. Considerable sales in advance were made a few months ago, and some of the dealers are now without quotations for the moment.

QUICKSILVER.—Very firm, at 6l. 7s. 6d. per bottle from the importers; second-hand holders make very little allowance, only about 6d. per bottle.

QUININE.—Extremely dull of sale. The nearest spot price for *German* in second hand is 12½d. per cwt., but no business is doing.

SAFFRON remains scarce and firmly held. If the weather at the end of August and in the early part of September should again be abnormally dry, a further advance may be looked for.

SHELLAC has been quiet during the week, and at auction only a very small supply of 165 cases was offered. Out of this, 30 cases unworked second *Orange*, medium flat livery, sold at 86s. per cwt., while for second *Button* 83s. to 84s. per cwt. was paid. T.N. *Orange* on the spot is offering at 88s. to 89s., A.C. *Garnet* at 84s. per cwt. Privately there has been no business worth mentioning.

SPICES.—*Cassia lignea* is firmly held. Sales have been made on the spot at 32s. per cwt. *Zanzibar cloves* are again lower privately. At auction 103 bales were bought in at 2½d. per lb. for fine quality, but privately 700 bales August-October delivery have been sold at 1¾d. per lb. *Clove stems* sold at auction at ¾d. per lb. Two hundred bags fair *River Plate* canary-seed sold, without reserve, at the low price of 23s. per cwt., showing a decline. *Mace* very dull of sale. Good bold pale *Penang* realised 2s.; ordinary to fine *West Indian*, 1s. 1d. to 1s. 4d. per lb. *Nutmegs* are also slow of sale. *Jamaican ginger* remains extremely scarce. Ten barrels dull and small washed sold at auction for 82s. 6d. per cwt. *Cochin*, which is in good supply, is quiet; ordinary rough native cut, 41s.; fair bold washed rough, 33s. per cwt. *Pimento* has quieted down somewhat. At auction 300 bags sold at 2½d. to 2¾d. for ordinary to fair. *White pepper* somewhat flatter, with sales of *Singapore*, August-October delivery, at 2½d.; September-November delivery, 2¾d. per lb. At auction 23 bags sea-damaged *Singapore* realised 2¾d. to 2¾d. per lb.

STAR-ANISE.—Prices are firmer. Since the recent sale by auction at 65s. per cwt. further business has been done at 67s. 6d., and, we believe, at 70s. per cwt., but more is now asked. Prices for shipment have lately advanced from 67s. 6d., c.i.f., to 78s. per cwt., c.i.f., for August-September shipment.

TRAGACANTH.—A fair business has been done this week, mostly for lower qualities for shipment to the United States, at from 85s. for common up to 7l. for fair brown. Smaller

lots of pale quality seconds have been sold for English and Continental consumption up to 13l. 10s. per cwt., showing full value.

TURMERIC.—Dull of sale; fair *Bengal* finger at 7s. 3d. per cwt., *Cochin* 7s. 9d. *Madras* finger is offering, according to quality, at from 8s. 6d. to 10s. 6d. per cwt.

WAX (JAPAN).—Still advancing. Good pale squares have realised 36s. per cwt. on the spot; for arrival 37s. 6d. per cwt., c.i.f., is asked.

Heavy Chemicals.

There is very little variation to note in the condition of the heavy-chemical market. Prices on the whole remain fairly firm, and to a great extent unaltered, but the volume of business passing does not increase at all—in fact, the prevailing tendency is rather towards a decline. The general demand for export is low, and although the home consumption seems to be heavier, it is not sufficiently large to counter-balance the falling off in the export trade. Amongst the changes in values which have taken place since last writing may be mentioned *Recovered sulphur*, which now practically stands at 4l. 5s. per ton, and moderate business has already been done at this higher figure. A further advance is also to be noted in *Benzols*: 90 per cent. for August-December delivery stand at 3s. 5d. to 3s. 6d.; January-June delivery, 3s. 3d.; and 50 per cent. September-December delivery, 2s. 7d.; January-June, 2s. 6d. Buyers are, however, not covering their requirements over the end of this year to any great extent. *Aniline oil* and *salt* very firm, and rather scarce for prompt. *Carbolic acid* crude 60 per cent., 2s.; 75 per cent. 2s. 4½d. to 2s. 5d. *Crude naphtha* 30 per cent., 1s. 1d. *Solvent naphtha* 90 per cent., 1s. 4½d. to 1s. 5d. *Sulphate of ammonia* is dull, and again lower. *Beckton* terms, 7l. 17s. 6d.; *Hull*, 7l. 15s. to 7l. 17s. 6d.; *London* and *Liverpool*, 8l.; *Leith*, 7l. 13s. 9d. to 7l. 15s. The quantity exported from *Leith* during the past week amounted to 431 tons. *Cream of tartar* has also declined still further, crystals are 93s., and powdered 95s. to 97s. *Soda crystals* and *Soda ash* are firm and in fair demand, but *bleaching powder* still continues very slow. *Green copperas* firm but unchanged. The *Welsh* product is, however, very scarce. *Saltcake* is selling freely, as are also *Alum* and *Sulphate of alumina*. *Hyposulphite of soda* steady, and moving more freely. *Sulphate of copper* dull and lower, *Anchor* August, 17l. 10s.; *Liverpool*, 17l. to 17l. 10s. *Chlorate of soda* weak, 5½d.; *Chlorate of potash* very dull, 4½d. to 4¾d. *Yellow Prussiate of potash* firm at 7½d. *White powdered Arsenic* still scarce at late rates. *Brown Acetate of lime* dull and lower, 4l. to 4l. 2s. 6d. *Sal ammoniac* brisk. *Borax* and *Boracic acid* dull. *Petroleum* firm. *Turpentine* steady. *Cotton*, *Linsced*, and *Palm oils* quiet.

The Hamburg Market.

Our Hamburg correspondent writes under date of July 28:—Business in general is very quiet in Hamburg, and there is but little doing in the drug-market at present. *Cape aloes* is unchanged at 57m. to 58m. per 100 kilos. *Antimony* firm and dearer; holders ask 35m. to 36m. per 100 kilos. *Citric acid* is firmer; best English 2.60m. per kilo. *Arsenic* shows also a firm market. *Balsam copaiba* unchanged; best pure quality 3.10m. to 3.40m. per kilo. *Balsam (Peru)* easier at 15½m. per kilo. *Camphor (refined)* shows but little business; prices vary from 317m. to 320m. per 100 kilos. *Cascara sagrada* is quiet, with large stocks, which can be bought at about 32m. to 33m. per 100 kilos. *Chlorate of potash* remains unchanged at 82m. per 100 kilos. *Coriander-seed* (Mogadore) offers at 12m. to 13m. per 100 kilos. *Cassia lignea* is very firm at about 66m. per 100 kilos., but the demand is not very large. *Ergot of rye* (Russian): Some sales were effected at 83m. to 87m. per 100 kilos. *Cantharides* (Russian) are quoted 4.40m. per kilo. *Glycerine* is firm and scarce, and a rise of prices is expected. *Gum acacia* is unchanged, firm, but without much business. *Honey* is quiet; new-crop *Chilian* is worth here about 20m. to 22m. per 50 kilos. *Menthol* remains quiet at 19m. to 20m. per kilo. *Opium*, 18m. to 19m. per kilo. *Cod-liver oil* firmer; non-congealing oil is quoted to-day 165m. to 176m. per barrel. *White sweet Seal oil* also firm. *Oils (essential)*: *Peppermint oil* HGH is quiet at 8¾m. to 9m. per lb.; *Todd*, 8¾m.

per lb.; *Japan* quiet, at 8½m. per kilo. *Star-anise* oil is quoted to-day 17m. to 18m. per kilo. *Quinine* is quite unchanged, at 39m. to 40m. per kilo. Spirits of *Turpentine* are very dull for spot as well as for forward delivery. *Sugar of milk* powder is quoted 135m. to 138m. per 100 kilos. *Shellac* is very firm but without much demand. *Spermaceti* is steady, at 298m. per 100 kilos. *Saffron*, 45m. to 50m. per kilo. *Star anise* steady, at 170m. to 180m. per 100 kilos. *Wax (Japan)* very firm, at 71m. to 73m. per 100 kilos. *Carnauba wax* quiet, grey quoted 165m.; medium 200m. to 220m., fine yellow scarce at 240m. per 100 kilos. *Linseed oil* is very dull; pale German linseed oil in barrels is offering freely per September-December and January-June at 40m. per 100 kilos. duty free. Refined *Cotton oil* is quiet at 32m. spot, 32½m. per March-April per 100 kilos. c.f. and i. Hamburg, in barrels. *Castor oil* firm, French pale quality 42½m. per 100 kilos. in barrels.

The Otto-of-Rose Crop.

(From our Bulgarian Correspondent.)

Kezanlik, July 22.

THE three weeks which have elapsed since the conclusion of the rose distillation have been chiefly taken up with the verification of the returns from the 153 rose villages of the district and the examination of the new otto. All the houses engaged in this industry have now completed their investigations and reports, and they agree that the present crop is the richest and the largest we have ever had. This year's output is indeed a record-breaker. The most moderate reports place the total yield of the crop at 105,000 T. oz., while the most liberal ones estimate it at 115,000 T. oz., thus making this year's crop 40 to 50 per cent. larger than last year's. The exact figure is just about 109,000 T. oz. pure otto, or fully 40 per cent. more than last year's yield. This estimate does not comprise either the 6,000 T. oz. commercial otto left unsold from last year's crop, or any portion of the geranium-oil imported this year into the country for purposes of sophistication. The total quantity of geranium-oil imported this year is at least 700 kilos., out of which two exporting houses own between them about 180 kilos.

The quality of the new otto is perfection itself—very rich in strength and extremely sweet in odour. This is exclusively due to the fact that fully 20 per cent. more flowers have been used this year to make the same amount of otto. The physical properties of the new otto, as exhibited from representative samples of pure otto from nearly all the main localities, are the following: freezing-point, 65° to 68° F.; s.g. at 86° F., .850 to .856; opt. rot., -2.3 to -2.7. The very slight variations in the figures are due to differences in the soil and the elevation of the various rose localities.

The price for the new crop is not yet fixed, and may not be for two or three weeks. The growers realised last year for their otto prices ranging from 32s. to 37s. per T. oz.; but of course the new prices should be considerably and proportionately lower, and they will certainly be so if speculators do not force our market by making premature sales abroad before the fixing of the native prices, or create temporarily artificial prices here in order to sell all the easier their made-up grades at good profit. This year's crop is the perfumers' crop *par excellence*. In the face of such great abundance and large over-production, our market is naturally bound to suffer a great breakdown, in spite of all artificial backing up. This depression, however, cannot be accomplished immediately and at one jump. It will come gradually and slowly. At present the general belief is that the new prices will at first be about 25 per cent. lower, and that later in the season they may show a further 25 per cent. drop.

In view of the extraordinary richness of the present crop and its superb quality, it is to be hoped that made-up grades will find no sale. It is only by closing the markets to all "commercial" and "ordinary" grades that an end can be put to all future speculation and sophistication in this article, and of late the sophistication of otto has assumed fearful proportions. The blame lies exclusively in the unscrupulous exporter and in the confiding consumer. Scores of villages and growers always distil and sell pure otto. More than two-thirds of the sophistication comes from the exporters.

The fact is known to everybody here. The importation of geranium-oil this year amounts to about 22,000 oz. Of this quantity more than 14,000 oz. has been secretly purchased by some exporters, of which one is said to hold 2,000 cz.; about 5,000 cz. has been distributed in small lots in a score of villages producing ordinary otto, and the balance is still for sale. The prevalence of sophistication among the exporters is also shown by the following facts:—(1) The average price of last year's crop as purchased by the exporters here was from 32s. to 37s. per T. oz., and, though all paid these high prices for their stock, many of the exporters were selling throughout the year their "extra fine guaranteed" brands at 28s. 6d. per T. oz. (2) Last year's crop, at its most liberal estimate, amounted to 78,000 T. oz., while the total stock of otto, crop 1895, exported by the different exporters, as given by the official Government report, amounts to 3,125 kilos., or about 97,500 T. oz.—an increase over the yield of nearly 20,000 T. cz. This explains why certain houses can declare their new prices abroad long before the fixing of the local prices, and always sell their brands 25 per cent. below the prices paid here.

There was quite a panic among certain exporters this year. In one of the distilleries a big copper of geranium-oil was confiscated by the authorities. Three other houses, frightened by this seizure, lodged personal protests with the authorities—as, indeed, what else could they do? for everybody knows that these parties were rectifying the crude geranium-oil in their distilleries.

The English Essentia'-oil Crops.

MESSRS. J. & G. MILLER write, under date of July 25:—"We regret to say that the prospect of the Mitcham peppermint crop is still a poor one. The best fields are those that were planted last year, but unfortunately very little was then planted on account of the drought. The persistency of the drought this season has been the principal cause of the present bad prospect. The rainfall was less in May (the month for planting) 1896 than in May 1895. Very little was, therefore, put out, but it is true that a larger acreage has been planted out since the rain came (about the middle of June) than was planted in June 1895. The yield of this planting, however, will not amount to much, as that period was too late for successful planting. Taking the Mitcham district as a whole, the crops are worse to-day (July 25) than last year at this date, and we are confident that the total yield of oil will be much below the average, however favourable the weather may be during the next few weeks. Should the weather remain unfavourable, it will be even less than last year, consequently prices must remain firm, as there is practically no old oil left in the hands of the growers, and prices have ruled high for several years, which prevents consumers from holding large stocks.

"Lavender is a good crop, but the acreage is much smaller than ever before, so that, in our opinion, prices must remain high.

"Chamomile and other drug crops are very poor.

"The only thing that might possibly remedy the present position would be an immediate and thorough soaking rain, followed by a few weeks of fine weather."

DRUG-DEPARTMENTS IN CANADA.—A case has been carried to the Divisional Court, Toronto, to get an authoritative decision in regard to the right of unqualified persons to keep open shop for the sale of poisons. A Mr. Simpson had a store, one department of which was for the sale of drugs. It was conducted by a qualified pharmacist named Lusk, who was admittedly a servant of Simpson's liable to discharge; but it was stated that there was a verbal agreement between them that he was to have control independent of Mr. Simpson. For the defendant it was argued that the purpose of the Act was entirely the protection of the public, and that this was sufficiently provided for. But the Court held that the words of the Act were plain, and that it was idle to discuss its spirit. The Act would not have applied if Mr. Simpson's business had been the property of a company; but he had no right to keep open shop for the sale of poisons, and that was what he was doing.



Memoranda for Correspondents.

In letters for publication correspondents are requested to express their views as concisely as possible.

Correspondents should write on one side of the paper only, and devote a separate piece of paper to each subject of inquiry.

The name and address of the writer should accompany all communications with, if desired, a distinctive nom-de-plume.

Carter's Little Liver-pills and Substitutes.

SIR,—The immediate efficiency of my recent advertisement in your columns, notifying an advance in the price of Carter's little liver-pills, is attested by numerous communications which you have published, and others that I have myself received on the subject.

That substitutes, more or less overt, for Carter's little liver-pills are widely offered is a fact well known, and one openly professed in the letters aforesaid. You, Sir, would (I am sure) be far from countenancing or encouraging illegitimate trade of any kind, and a little aversion is expressed by our correspondents; but the latter, in many instances, have thought proper to excuse their advocacy of substitutes, avowedly offered in satisfaction of the public demand created by the advertising of the Carter Medicine Company, on the ground that the recent increase in the price of the genuine article has deprived of a sufficient profit those retail traders whose business is too small to allow of the 5-gross parcel (required in order to secure the lowest terms) being taken. It appears from this that the commercial conscience of our correspondents is capable of being reinforced by certain financial considerations.

Zealous for the souls' health of the gentlemen who have favoured you and me with their views on the subject, I propose to offer the reinforcement necessary, and thus conduct them to the right path.

I shall, therefore, have pleasure in supplying on the lowest terms made for any purchase whatever of Carter's little liver-pills, so small a parcel as a single gross, on the simple conditions—(a) that each such order be accompanied by a remittance for its very modest amount, and (b) that there be added to it a letter promising to abjure and discountenance the sale of all substitutes and imitative preparations designed to replace the said Carter's little liver-pills.

The letter will be just as essential to the bargain as the cheque; and I venture to think that it presents an opportunity, which should be gladly embraced, of justifying certain professions that have been freely made of late, and of which the sincerity will be placed beyond all possible cavil, by the adoption of the proposal herein made to the retail trade of the kingdom.

I am, &c.,

THE AGENT FOR THE CARTER MEDICINE COMPANY.

46 Holborn Viaduct, London, E.C., July 29.

SIR,—Would it be possible, think you, to form an association, having for its object the non-stocking of all proprietary articles the price of which is (or has been advanced), higher than, say, 10s. for 1s. 1½d. and 24s. for 2s. 9d.?

Yours faithfully,

LIVE AND LET LIVE.

SIR,—Kindly allow me to tender my sincere thanks to the Carter Medicine Company for their kindness in raising the price of their pills: the good that it has done to me is more than I anticipated.

As soon as I was aware of the change I placed upon my counter in a prominent position a little glass case containing about a gross of wrapped unstamped tubes of vegetable

liver-pills, with a neat showcard bearing the inscription "40 sugar-coated vegetable liver-pills, made in America. Price 7½d. per bottle." The result has been astonishing: during fourteen days (with nothing but an occasional explanation to customers that of course I can afford to sell a good pill at a reasonable price, as I never spent money on advertising them) I have sold 47 bottles, yielding a profit of just under 1l.—that is, nearly 5d. each—against three of Carter's, which of course did very, very little towards paying my rent and taxes. During the whole of that time nothing was ever mentioned about "little pills"—the public could see for themselves, as one or two of the tubes were shown unwrapped.

Yours truly,

FARMACISTA. (136/35.)

A gentleman brought into the C. & D. office on Wednesday, July 29, two bottles of Carter's little liver-pills, which he had bought at the Civil Service Supply Association, Queen Victoria Street, for 1s. 8d. We retain the invoice.

Wholesale Price-lists.

SIR,—Following up your advice to have circulars printed right size for insertion in your special editions, I have often thought what a distinct advantage it would be if all wholesale lists were one size. It would be easy to bind or file them all together ready for reference, and they would be preserved, whereas now the trouble of classification causes nine-tenths of them to go into the waste-paper basket.

Yours faithfully,

Hereford, July 25.

J. J. JACKSON.

[By filing the C. & D. and DIARY you always have the most valuable at hand.]

Homœopathic Pharmacy.

SIR,—Your article in the Summer Issue of July 25 entitled "A Homœopathic Pharmacy," contains a serious misstatement which requires correction, and one calculated to injure my business. Your correspondent states that the homœopathic pharmacy founded by the late James Leath, in St. Paul's Churchyard, at the top of Doctors' Commons, "has now been wiped out." This is an error. I was with the late James Leath as manager from 1862 until his lamented death in 1884, and from then until September, 1894, I continued to manage the St. Paul's business for Mr. Ross. In September, 1894, in accordance with a long-standing agreement between us, I took over the lease of premises, all the stock and fixtures of the pharmacy, and for one year carried it on myself until the historical old shop was pulled down to make room for the handsomer shop now erected in Dean's Court. It was I who suffered by the "ruthless renovator," and not, as your correspondent imagines, the firm he mentions; for had not the premises been pulled down I should still be carrying on the original James Leath pharmacy, but as it is I have at great expense had the fixtures and fittings removed intact but five yards away, to my new premises in Dean's Court, where I hope for many a long day to continue what is one of the oldest-established homœopathic pharmacies in London for the supply of homœopathic medicines, cases, chests, and specialties, as hitherto, wholesale, retail, and export.—I am Sir, yours faithfully,

F. T. SUBSHAM.

Dean's Court, 5 St. Paul's Churchyard, E.C., July 25.

Chlorodyne in Egypt.

SIR,—I am in receipt of a letter, bearing date July 16, from Mr. E. Del Mar, of Cairo and Alexandria, in which, regarding the great demand for chlorodyne, he states: "It may be of interest to you to know that I have lost the sale of 1,000 bottles of chlorodyne, which have been asked for in fifteen days, and I should have been very glad to know one month ago that a chemist had the article in stock."

This information from such a reliable source bears out the correctness of the statements made by me.

Yours truly,

ROBERT R. MARTIN.

11 Queen Victoria Street, E.C., July 27.

Old English Plant Names.

SIR,—Of the many good things provided in your magnificent summer number, not the least interesting was Mr. C. C. Bell's able article on "Plant Names." Perhaps he will allow me to take exception to one or two of his findings. It is almost impossible, I know, to be final on such a subject as Old English philology, where conjecture has so often to take the place of certitude. But Mr. Bell's suggestions for the etymology of "Alehoof" and "Tunhoof," are not among his happiest hits. Ground-ivy appears to have been the predecessor of the hop in old English brewing. Salmon's "Herbal" has the following:—"Yon may put three large handfuls of the green herb to every gallon of ale whilst working: it is said to clarify and make fine the drink in about twenty-four hours time: from whence came the name of Ale-hoof or Tun-hoof, and in old time supplied the use of hops."

Gerard has this reference:—"The women of our Northerne parts, especially about Wales and Cheshire, do tunne the herb ale-hoof into their ale, but the reason thereof I know not, notwithstanding without all controversie it is most singular against the griefes aforesaid [complaints of the eyes and ears, sciatica, jaundice, &c.], being tunned up in ale and drunke; it also purgeth the head from rhumatike humors flowing from the braine."

Not that the old botanists are safe guides to follow, by any means. Mr. Bell himself has, strangely enough, adopted one of their common errors in describing *Hyacinthus non-scriptus* as the "harebell," instead of as the English "bluebell." The true harebell (or *hairbell*, as modern botanists write it) is the bellflower *Campanula rotundifolia*, or "bluebell" of Scotland.

With regard to Shakespeare's mentions of mandragora, the poet certainly uses that form when he is speaking of the hypnotic effects of the drug ("Othello" and "Antony and Cleopatra"), but when he refers to the superstitions attaching to that plant, he employs the English form "mandrake" ("Henry VI." and "Romeo and Juliet").

Senna, again, does not appear as such, or even as *sene*, in the oldest editions, but as *cyme*:

What rhuarb, cyme, or what purgative drug,
Could scour these English homes?—"Macbeth," v. 3

—cyme being probably a misprint for *eynne*, or, perhaps *cany*.

I trust it will not be long before your columns are enriched by further treatment of this fascinating subject from Mr. Bell's facile pen.

Yours truly,
Brighton,* July 23. C. S. ASHTON.

MISCELLANEOUS INQUIRIES.

N.B.—All queries should be accompanied by the business card of a subscriber, or the address label from THE CHEMIST AND DRUGGIST wrapper. We destroy anonymous letters. We do not answer queries of the kind here dealt with by post. We ask that separate queries shall be written on separate sheets of paper.

NO SAMPLES will be analysed and reported upon unless the sender labels the sample with his name and the name of the article, and informs us (not necessarily for publication) by whom the article is made, for what purpose and how it is used, and any further particulars of interest.

Back numbers containing formulae, educational or other specific information can be obtained from the Publisher.

124/43. *Sufferer*.—You might try the following pills for the obstinate case of nocturnal emissions:—

Ergotin.	..	..	..	..	gr. $\frac{1}{2}$
Ext. nuc. vom.	..	..	..	..	gr. $\frac{1}{4}$
P. glycyrrh.	..	..	..	..	gr. j.

Ft. pil.

One to be taken twice daily after food.

135/57. *Game*.—We cannot advise you as to London localities without knowing what sort of a trade you want to do or how much money you want to spend. Farringdon Road is a popular part for wholesale patent-medicine makers.

The suburbs are all about equally crowded, so, if you want to have a retail shop for your speciality, you might choose the neighbourhood where it would be likely to be bought.

123/43. *Chas. Johnson*.—The Guttapercha Solution for repairing boots is a solution of guttapercha in bisulphide of carbon. The guttapercha is apparently a very low-grade article, which might account for the small price.

121/56. *Liverish*.—Powder for Liver-troubles and Headaches is—

Mag. sulph. exsicc.	..	..	..	..	3j.
Sodii bicarb.	..	..	..	..	3j.

M.

One teaspoonful for a dose, in a tumbler of warm water, taken early in the morning.

126/14. *Rusticus*.—Dyspepsia-mixture:—

B'smuth, subnitr.	..	..	..	..	gr. x.
Muc. acacie	..	..	..	..	℥℥v.
Sp. ammon. arcum.	..	..	..	..	℥℥xx.
Aque ad	..	..	..	..	3ss.

M.

Ter in die ante cibos.

123/20. *Hairine*.—Nit Oil.—You will find this very effectual:—

Ol. staphisag. express	..	..	..	..	3j.
Ol. nucis	..	..	..	..	3ix.
Ol. bergam.	..	..	..	..	3ss.
Ol. Rosæ geranii	..	..	..	..	℥℥xx.

M.

The head to be well washed every few days whilst using this.

128/6. *Statim*.—In regard to the deodorisation of petroleum see a note in this issue. It is illegal to deodorise methylated spirit by abstracting anything from it.

128/10. *T. and T.*—Panama Wood is cortex quillaia.

121/14. *Cherry*.—Your advice to the customer should be to leave the cancer-curer severely alone.

125/28. *Cytis*.—Try an ounce of fresh acacia mucilage in the emulsion instead of the sugar.

130/28. *A. E. H.*—See the "Art of Dispensing" in regard to homœopathic pharmacy; also Keene & Ashwell's "Companion to the British Homœopathic Pharmacopœia."

130/26. *Sanule*.—(1) The last edition of the "Art of Dispensing" is the fifth, of which there have been several reprints. One will be ready in a few weeks. (2) Yes.

130/10. *Bethesda*.—You will find a formula for boot-polish in the DIARY. See also article in this issue.

221/14. *Rubinat. Liq. Rosæ Dulc*.—The following is a formula which we received from a subscriber some time ago:—

Carmin.	..	..	..	..	gr. x.
Liq. ammon. fort.	..	..	..	..	3ss.

Dissolve and add—

Glycerin.	..	..	..	..	3ij.
Aq. dest.	..	..	..	..	3ij.

Heat gently to get rid of the odour of ammonia. When cold add—

Otto rosæ	..	..	..	..	℥ij.
S.V.R.	..	..	..	..	3ss.

Mix.

[Several pages of replies to correspondents are held over.]